LEATH & ROSS'S HOMŒOPATHIC PHARMACIES,

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Those desirous of BECOMING AGENTS are requested

Agents for L. & R.'s Medicines are now established in every town of any importance in England, some of the principal towns in Ireland and Scotland, several of the British Colonies, and India and America. Upwards of 1,800 persons have accepted the Agency, and many have found this branch a profitable auxiliary to their other business.

Our Agents' GLASS-TOP SHOW CASE, As it appears open.



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THE NEW FAMILY CHEST

Contains 28 Bottles of the most useful Homœopathic Medicines, a Guide, giving the treatment of all common complaints, the uses of the Medicines, proper doses, &c. In the lid are the two externals most in use, viz., Arnica and Calendula. It can be fitted to hold either Pilules or Tinctures.

Price 25/; trade price, 16/8.

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PUT UP READY FOR SALE.

GLOBULES—Medicated any strength up to the 30th potency.
Sixpenny Tubes, 3/- per dozen.
Ninepenny „ 4/6 „
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Sixpenny Bottles, 3/- per dozen.
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Agents' Counter Cases, £2/2/0, £3/3/0, £4/4/0, £6/6/0, and £10/10/0.

LEATH & ROSS, LONDON.

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INTERNATIONAL
MEDICAL & SANITARY EXHIBITION,
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PETROLEUM VASELINE JELLY.

This makes the **7**th Highest Award granted to "Vaseline" by the most distinguished Medical and Pharmaceutical Authorities of the world, and ranks it without question as the

Best Basis for Ointments known to Science.

"Vaseline" is the only article of its kind which has received any official recognition whatever, anywhere.

"VASELINE" (Pure), in 1 oz., 2 oz., and 5 oz. bottles, and ½-lb., 1 lb., and 5 lb. Tins.
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"VASELINE ANTI-CORROSIVE PASTE," in Tin Boxes, one size, Retail Price, 6d. each.

Revised Price Lists showing Large Reductions in Medicinal, Pharmaceutical, and Toilet Preparations of Vaseline, free by post.

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To prevent the substitution of other articles for "VASELINE" we beg to state that our Tins are now hermetically sealed and bear our stamp on the cap.



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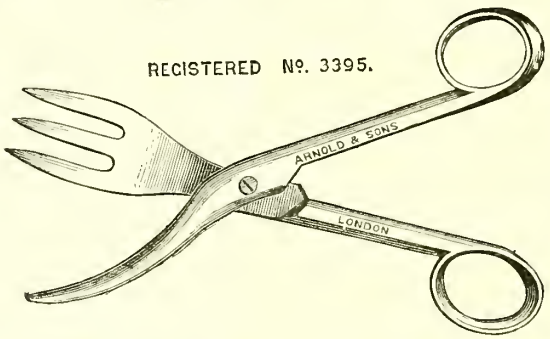
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"DESIDERATUM," OR KNIFE & FORK COMBINED.

Suggested by DR. J. C. HOGAN, M.B.

PRICE:
Nickel-plated for Right or Left Hand,
15s.



PRICE:
Nickel-plated for Right or Left Hand,
15s.

This Instrument supplies a want long felt by those who only have the use of one hand, either from Amputation, Paralysis, Accident, or otherwise.

Extract from The Lancet, March 12th, 1881 :—"The Instrument of which the enclosed is an illustration (and which I have named 'The Desideratum' for the purpose of registration) was invented by me to obviate as far as possible the awkwardness and inconvenience attendant on the eating of their meals by persons deprived of the use of either arm." Extract from the Brit. Med. Journal, March 19th, 1881 :—"It is on the principle of the shears being formed of a fork and cutting blade, which enables the person using it to divide at will and raise his or her food." Extract from the Med. Press and Circular, March 16th, 1881 :—"It can be had to suit either the right or left hand, and with or without an indentation (which acts as a tooth) on the fork edge." Extract from Mr D. Times and Gazette, March 19th, 1881 :—"Messrs. Arnold & Sons, of West Smithfield, have most intelligently carried out my design."

Sole Manufacturers : **ARNOLD & SONS**, Instrument Makers,

By Appointment to Her Majesty's Government, St. Bartholomew's Hospital, and the Principal Provincial and Colonial Hospitals, &c.,

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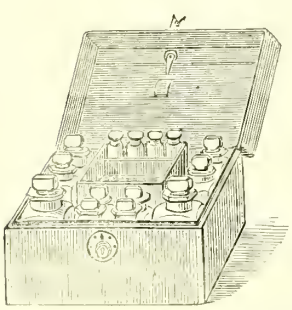
MEDICINE CHEST MANUFACTURER,

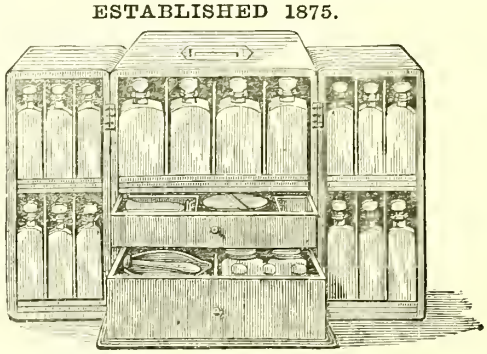
DANBY STREET, PECKHAM, LONDON, S.E.

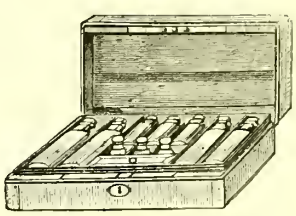
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LONDON, 1862.

NOTICE TO THE TRADE.

JUNE, 1881.

PRIZE MEDAL,



PHILADELPHIA, 1876.

LOW'S FLOWER EXTRACTS, &c.,

ARE NOW REDUCED IN PRICE, AS BELOW:—

	per lb.		per lb.		per lb.
Ext. Cassie	9/6	Ext. Rezeda	9/6	Ext. Tubereuse	9/6
„ Jasmin	9/6	„ Rondeletia	8/-	„ Violet	15/-
„ Jonquil	9/6	„ Rose	9/6	„ Verbena	8/-
„ Lily of the Valley ...	9/6	„ Rose Geranium ...	9/6	„ White Rose	10/6
„ Magnolia	9/6	„ Spring Flowers ...	9/6	„ White Lilac	9/6
„ Orange Flower ...	9/6	„ Stephanotis	9/6	„ Wood Violet	13/6
„ Patchouli	9/6	„ Sweet Briar	9/6	„ Wild Rose	9/6
„ Queen of the Alps ...	9/6	„ Tea Rose	9/6	„ Ylang Ylang	9/6

These Extracts have always had the highest reputation; they are all of our own manufacture, are guaranteed **pure,** and of **triple strength,** and will compare favourably with any in the Trade.

N.B.—Owing to the failure of the **VIOLET** crop in 1880, however, this Extract is advanced in price, and will probably remain high for some time. Purchasers are warned against the spurious Ext. Violets already in the market.

LOW'S COMPOUND PERFUMES,

For Dilution by the Trade, are the Strongest in the Market, viz.:—

ESS. BOUQUET, JOCKEY CLUB, & FRANGIPANNI.

Price 14/- per lb.; or 13/- in Winchester Quarts.

LOW'S NURSERY SOAP.

This Soap is the result of considerable study and many experiments, the object desired being to produce a **soap** that would be **quite neutral,** and thus innocuous to the most tender skin, yet one that would lather freely, and not waste quickly away.

Price 33/- per Gross; or 11/- per doz. Boxes of 4 Tablets.

FAMILY BROWN WINDSOR SOAP,

At **60/-** *per cwt., Genuine, and Sweetly Perfumed.*

This Soap is recommended to the Trade as the best value that can be obtained. Embossed Squares, 6 to lb., and in 14-lb Boxe

Discount, 10 per Cent. Cash at a Month, or 5 per Cent. payable on Journey.

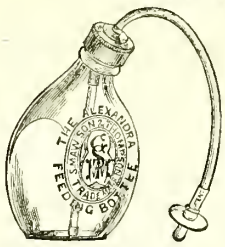
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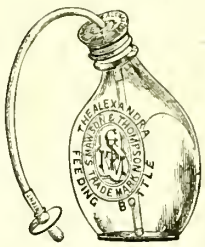
FEEDING BOTTLES.



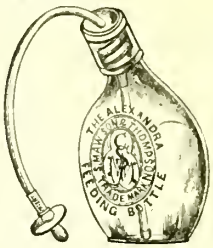
Alexandra Feeding Bottle,
Screw Metal Caps,
11/ per doz.



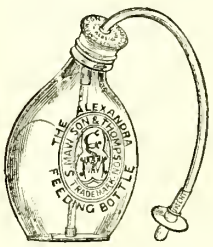
Alexandra Feeding Bottle,
Gilt Porcelain Cap,
20/ per doz.



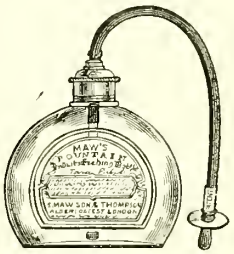
Alexandra Feeding Bottle,
Earthenware Cap,
10/ per doz.



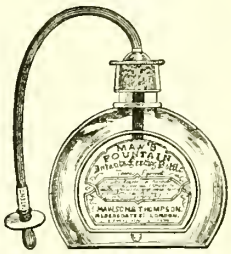
Alexandra Feeding Bottle,
Screw Glass Stopper,
10/3 per doz.



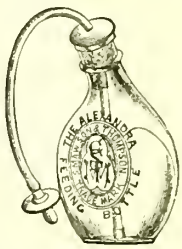
Alexandra Feeding Bottle,
Earthenware Cap,
7/6 per doz.



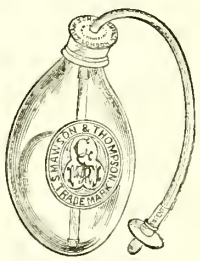
Fountain Feeding Bottle,
Pure Tin Mount,
20/ per doz.



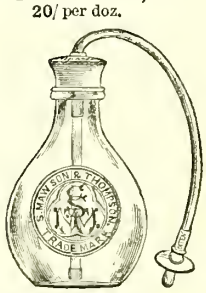
Fountain Feeding Bottle,
Pure Tin Mount,
12/ per doz.



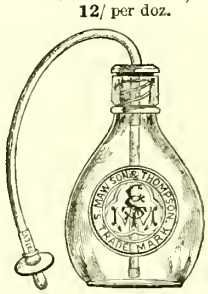
Alexandra Feeding Bottle,
Wood-Top Cork,
3/9 per doz.



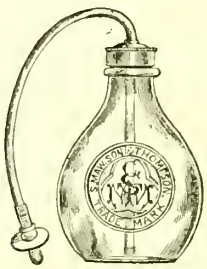
Oval Feeding Bottle,
Earthenware Cap,
7/6 per doz.



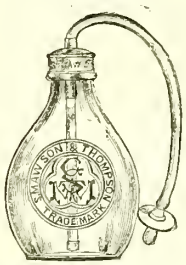
Export Feeding Bottle,
Earthenware Cap,
7/3 per doz.



Export Feeding Bottle,
Screw Glass Stopper,
7/6 per doz.



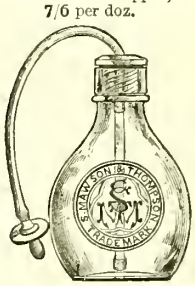
Export Feeding Bottle,
Screw Metal Cap,
8/6 per doz.



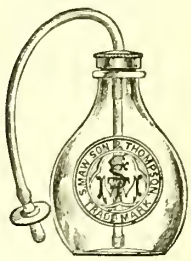
Export Feeding Bottle,
Metal Cap,
4/3 per doz.



Export Feeding Bottle,
Wood-Top Cork,
3/6 per doz.



Export Feeding Bottle,
Screw Glass Stopper,
4/3 per doz.



Export Feeding Bottle,
Screw Metal Cap,
4/6 per doz.

SPECIAL QUOTATIONS TO WHOLESALE BUYERS.

FOR FURTHER PARTICULARS SEE QUARTERLY PRICE CURRENT, PAGES 53, 54.

S. MAW, SON & THOMPSON,

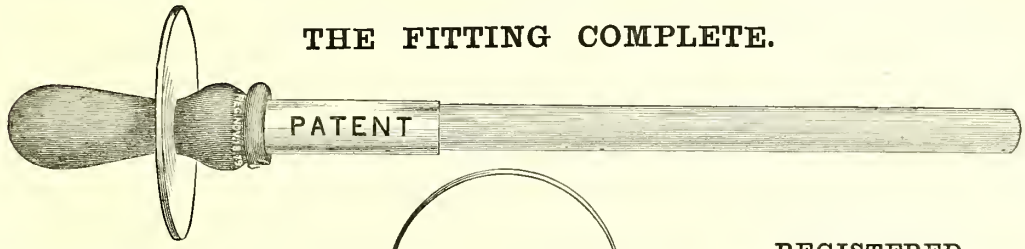
7 to 12 Aldersgate Street, London.

S. MAW, SON & THOMPSON'S

IMPROVEMENT IN FEEDING BOTTLES.

Patented in England, December 4, 1879;
Patented in the United States, April 27, 1880.

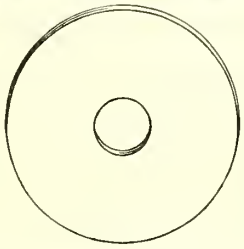
THE FITTING COMPLETE.



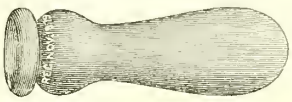
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COUPLING-PIECE.



REGISTERED



INDIA-RUBBER TEAT.

PATENT INDIA-RUBBER TUBE.



Patent India-rubber Tubes, in ½ gross and 1 gross Boxes—

9 inch White ... ... *per gross*, 10/6		9 inch Black ... ... *per gross*, 15/-	
10 „ „ super... „ 16/		10 „ „ ... ... „ 16/-	

Registered India-rubber Teats, in 1 doz. Boxes—

2 Sizes (Small and Medium), *per gross*, White, 8/ & 14/; Black, 12/ & 21/-

Patent Coupling-pieces, in 3 doz. Boxes ... ... *per gross*, 8/-

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S. MAW, SON & THOMPSON beg to inform the Trade that in future all their Feeding Bottles, except Sixpenny, will be fitted with the above **PATENTED IMPROVEMENT,** unless ordered to the contrary.

The improvement consists in the introduction of the New Registered Teat, and in the construction of the Coupling-piece, the latter **passing over** the **exterior** of the India-rubber Tube, by which arrangement injurious contraction is avoided, and the cleaning of the Tube facilitated, a Tube Brush being easily passed through without the removal of the Coupling-piece.

In the fitting-up of ordinary Feeding Bottles, the Shield fixes the Teat upon the Union Joint, preventing its easy removal, and making it difficult to replace the Teat in its air-tight position, without which the action of no Feeding Bottle is perfect. The New Registered Teat is so formed as to receive the Shield and retain it in position without connection with the Coupling-piece, the Teat thus being easily removed and replaced without damage.

SPECIAL QUOTATIONS TO WHOLESALE BUYERS.

S. MAW, SON & THOMPSON, LONDON.

TRADE

FOSSILINE

MARK.

A bland, odourless, perfectly pure Hydro-Carbon Jelly, of greater smoothness, firmer consistency, and better appearance than any other Petroleum Jelly.

As a **REMEDIAL AGENT** the properties of **FOSSILINE** are not to be excelled. Physicians have found it invaluable as a basis for Ointments, &c., and as a vehicle for employing the most prized and potent medicines. It is now used in the leading Hospitals in Europe and Canada. It Cannot go Rancid, and as an **EMOLLIENT** it is undoubtedly the best yet discovered, being far superior to Glycerine, Cold Cream, or Camphor Balls in softening and healing properties. As a **HOUSEHOLD REMEDY** it is recommended as an application to Burns, Cuts, Bruises, and Sprains, Sunburns, Chilblains, and all other Skin Diseases, and the Bites of Poisonous Insects.

We have reduced the price 2d. per lb. See Lists.

FOSSILINE (SIMPLE)

Sold in Bottles, One Shilling each; 8/ per dozen.

The following preparations may also be obtained:—

SAVAR'S FOSSILINE POMADE

Prevents the hair from falling off, and as a smaller quantity is sufficient for use, it is the most economical Hair Dressing known.

Sold in Three-Ounce Stoppered Bottles, One Shilling each; 8/ per dozen.
Also in Sixpenny Bottles; 4/ per dozen.

TOILET FOSSILINE SOAP

Highly emollient and economical, the most agreeable Soap.

In Tablets, 6d. each; or in 1/6 and 5/ Boxes; 4/, 13/, and 48/ per dozen.

These Toilet Requisites are exquisitely perfumed with the delicate odours of the

MONTSERRAT LIME TREE BLOSSOMS.

PATENT FOSSILINE PLASTER,

Generally used in the leading Hospitals as a substitute for other Plasters, it adheres readily without warming, and is easily removed for inspection of wounds or re-dressing, and of great service (spread on Holland or Leatherine) as an application to bed sores.

Sold in Boxes, Ninepence each, 6/ per dozen; or spread on linen, 9/ per dozen yards; on holland, 12/ per dozen yards.

PATENT FOSSILINE CORN PLASTERS,

Are emollient and cooling, and as they do not require wetting or warming, are easily applied.

In Bulk (½ gross glass-top Boxes), 3/6 per gross; and in Boxes, Retail 6d. and 1/ each, 3/6 and 7/ per doz.

SUBJECT TO THE USUAL DISCOUNT.

☞ Be sure to ask for **FOSSILINE** and SAVAR'S preparations of it, and see that you get them, and not any others said to be of a similar nature. See that the Trade Mark is on the label.



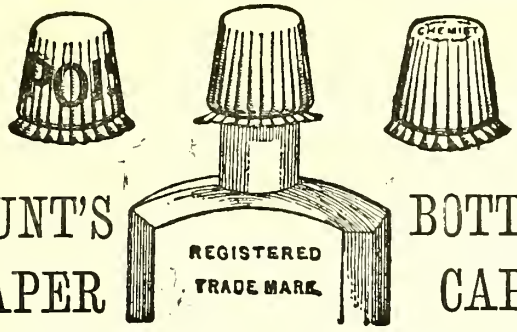
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EVANS, SONS & CO.,
56 Hanover Street, Liverpool.

EVANS, LESCHER & WEBB,
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H. SUGDEN EVANS & CO., Montreal, Canada, and Rouse's Point, New York.

ONE SHILLING PER GROSS.



HUNT'S PAPER BOTTLE CAPS.

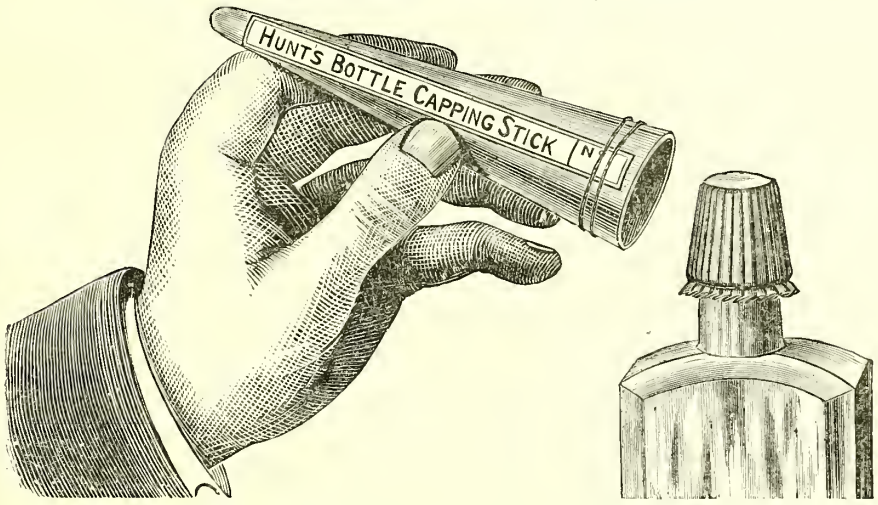
Made of Superior Strong Papers by Machinery Patented in England, France, Germany, and America. Pleated in a style impossible to imitate by manipulation.

PRICE LIST.

Nos. 0 to 5	**(Drachms to 10 ozs.)**	**1s. 0d. per gross.**
,, 6	**(Pints)**	**1s. 4d. ,, ,,**
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The Stock Colours are Red, Blue, Green, Orange, Violet, Grey, and White.
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FORTIETH SESSION, 1881-82.

The Session will commence on Monday, October 3rd, 1881, as follows:—

CHEMISTRY AND PHARMACY .. .. Professor REDWOOD, Ph.D , F.I.C., &c.
On Monday, Tuesday, and Wednesday Mornings, at 9 o'clock.

BOTANY AND MATERIA MEDICA .. .. Professor BENTLEY, M.R.C.S., F.L.S., &c.
On Thursday, Friday, and Saturday Mornings, at 9 o'clock.

PRACTICAL CHEMISTRY .. .. Professor ATTFIELD, Ph.D., F.R.S., &c.
Daily at 10 o'clock, in the Laboratory.

At 8 p.m. on Wednesday, October 5th, the School Prizes will be distributed, and an Address to the Students be delivered by Charles Symes, Ph.D. All Students and Friends, ladies as well as gentlemen, are invited to be present.

THE LECTURES ON

CHEMISTRY AND PHARMACY

Will commence on Monday, October 3rd, 1881.

They will comprise:—

1. An exposition of the physical forces involved in chemical and pharmaceutical operations and changes.

2. The chemistry of inorganic bodies, including a description of the elements and their more important inorganic compounds, especially those used in medicine.

3. The chemistry of organic compounds, with a description of such as have important applications in the arts and in medicine.

The subjects will be fully illustrated with experiments, diagrams, and specimens; and every lecture will be followed by an examination of the class on those subjects which have been previously treated of by the Professor.

With the view of connecting the lecture teaching with the instruction given to the practical class in the laboratory, and of enabling the Professor to increase the number of his experimental illustrations, the Demonstrator of Practical Chemistry will assist at these lectures and at the examinations.

Instruction in Practical Dispensing will be provided for those Students who have previously had but slight means afforded them of becoming skilled in such operations.

Fees.

	£	s.	d.
One Course (five months)	3	3	0
An Entire Session (two Courses)	4	4	0
Perpetual Admission	5	5	0

THE LECTURES ON

BOTANY & MATERIA MEDICA

Will commence on Thursday, October 6th, 1881.

They will comprise:—

1. Structural and Physiological Botany, which is especially adapted to meet the requirements of pharmaceutical students.

2. Organic Materia Medica, comprising the medicinal substances obtained from the organic kingdom, which are considered in the order of the natural historical relations of the organised beings which produce them.

3. Systematic and Practical Botany, which is taught during the summer months in the Royal Botanic Society's Gardens, Regent's Park.

All the Lectures will be very fully illustrated by every means to which recourse can be had, including fresh, dried, and preserved portions of plants, together with their products and secretions; and by an extensive series of drawings, diagrams, and preparations, as well as by experiments and microscopical preparations.

In order to test the proficiency of the pupils, and to bring them into more intimate intercourse with the Professors, a *vivâ-voce* examination is held after each Lecture. It is hoped that all pupils will attend these examinations.

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	£	s.	d.
Botany and Materia Medica, one Course (five months)	2	2	0
An Entire Session (two Courses), including Systematic and Practical Botany	3	3	0
Systematic and Practical Botany, separately	1	1	0
Perpetual Admission to all the Courses	4	4	0

INSTRUCTION IN

PRACTICAL CHEMISTRY,

Conducted in the Laboratory by the Professor and Demonstrators, will commence on Monday, October 3rd, 1881.

The Laboratories are open from ten o'clock in the morning until five in the afternoon daily, except on Saturdays, when they are closed at two o'clock. They are fitted up with every convenience for the study of the principles of Chemistry by personal experiment. They are specially designed for the student of Pharmacy, but are equally well adapted for the acquirement of a knowledge of Chemistry in its application to Medicine, Manufactures, Analysis, or Original Research. There is no general class for simultaneous instruction, each Student following an independent course of study always determined by his previous knowledge; Pupils can therefore *enter for any period at any date.* A complete course of instruction, including the higher branches of Quantitative Analysis, occupies ten full months, and dated from the day of entry to that day twelvemonth.

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	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
10.0 to 5.0 daily (Sat. 10.0 to 2.0)	4 4 0	7 7 0	10 10 0	15 15 0	26 5 0
Three days weekly or 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
Two days weekly or 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

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In the Class of PRACTICAL CHEMISTRY, one Silver Medal, two Bronze Medals and Certificates of Honour and Merit, will be competed for at the end of the Session.

CERTIFICATES OF ATTENDANCE.

Certificates of Attendance in the Classes of Chemistry and Pharmacy, Botany and Materia Medica, and Practical Chemistry, are given by the Professors, under certain conditions, to all Students.

LIBRARY, READING-ROOM, AND MUSEUMS.

These are open to all Students connected with the Society. Other Students in the School may obtain orders for admission on application to the Secretary.

Application for admission to the School, for Prospectuses, or for further information, may be made to the Professors or their Assistants in the Lecture Room or Laboratories, 17 Bloomsbury Square, London, W.C.

PHARMACEUTICAL DEPARTMENT FEES:

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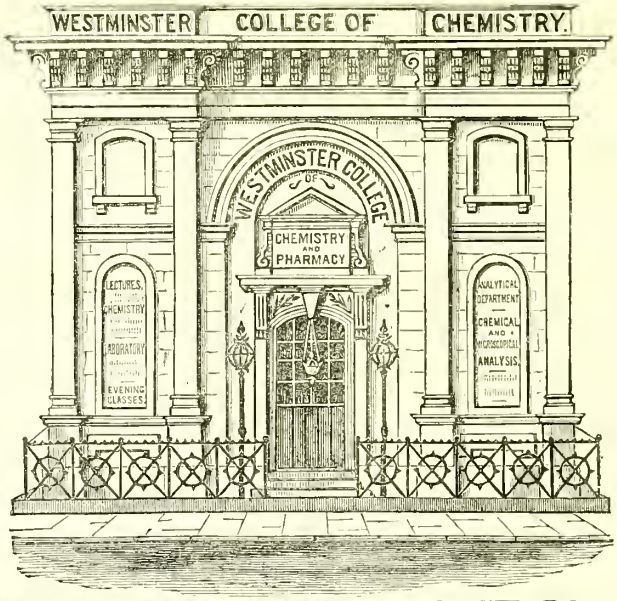
One Month ..... £2 2s.
Until Qualified ... £5 5s.

MINOR.

One Month .....£3 3s.
Till the October Exam. ..... £4 4s.
Three Months..... £7 7s.
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*PASS LIST FOR THE SESSION 1880-81.

28 Students entered this School for the MAJOR COURSE. **26** presented themselves for examination.

The following **18** passed:—Messrs. Allsworth, Botwood, Cann, Dunlop, Haden, Hope, James, Jowett, Garland, Lewis, Matthews, Morse, Nettle, Parker, Rookledge, Slater, Wimshurst, Wright.

As an example of the unparalleled success attending the Westminster College Students in the Minor Examination we tabulate the result of each examination.

October.		December.		February.		April.		June.	July.	
FROM West. Col.	FROM Other Sources.	FROM West. Col.	FROM Other Sources.	FROM West. Col.	FROM Other Sources.	FROM West. Col.	FROM Other Sources.	FROM West. Col.	FROM West. Col.	FROM Other Sources.
Messrs.	Messrs.	Messrs.	Messrs.	Messrs.	Messrs.	Messrs.	Messrs.	Messrs.	Messrs.	Messrs.
Aekermau	Baker	Barber	Baker	Beek	Blamey	Aplin	Ashton	Cook	Atkinson	Ball
Adams	Botham	Evans	Bevis	Burt	Bowker	Barlow	Atherton	Maekereth	Blain	Bletsoe
Austen	Burford	Garland	Bilson	Chapman	Dickinson	Clark	Atkinson	Powell	Bush	Bobby
Baines	Chaplin	George	Broad	Greenwood	Dixon	Chabôt	Barnes	Robinson	Cross	Burus
Bardill	Chapman	Hill	Crackuell	Heading	Dobson	Collis	Billington	Sinziniex	Davies	Coates
Bowman	Cooper	Hartley	Dawson	Hobson	Griffiths	Cottman	Braithwaite	Thompson	Davidson	Davies
Brampton	Crompton	James	Edwards	Holmes	Groves	Ellard	Briggs	6	Deeks	Fargher
Curry	Cule	Leithead	Fielder	Jones	Hodgson	Farrar	Briggs		Evans	Fry
Gilkes	Ellis	Nettle	Fry	Meadowcroft	Lewis	Flintan	Bull		Fisk	Greaves
Hucklebridge	Evans	Patterson	Goldby	Ninnis	Martin	Freeman	Clarke		Foster	Holland
Jenks	Forrest	Power	Haines	Norfolk	Merrell	Gaseoyne	Davies		Fresson	Jones
Jevous	Gill	Richardson	Hornby	Prosser	Millhouse	Grant	Holt		Gibson	Parker
McDonald	Harrison	Robinson	Johns	Watts	Pembertou	Horrell	Hornby		Hall	Smith
Moore	Hart	Surfleet	Kemp	Wylde	Perkins	Ison	Kay		Harrison	Stott
Murray	Howell	Willett	Lawrenee		Sheffield	Jowett	Kirkby		Hughes	Thorpe
Neweombe	Hunt	Wyuter	Lester		Skiuner	Marshall	Lewis		Hughes	Warrick
Norton	Jaekson		Llewelyn		Wright	Page	Orchard		Jacklin	Way
Preston	Paine		Maitland			Portway	Pratt	FROM Other Sources.	Jepson	White
Quine	Rigg		Matthews			Rookledge	Proeter	Messrs.	Jones	Whitwell
Ripley	Watson		Maxey			Saul	Ridgley	Bates	Leyland	Williams
Stanford	Woods		Roberts			Skinner	Seymour	Bramald	Mangnall	Wood
Sumner			Rogers			Staley	Shaw	Garry	Owen	Wylde
Whitton			Suart			Timms	Skinner	Humphries	Pavey	Yeatman
			Thompson			Wallbridge	Stretch	Jackson	Pearce	
			Walgate			Wilkinson	Trubshaw	Jenkius	Preece	
			Whigham			Young	Walker	Judd	Robinsou	
			Yeates				Walker	Pritchard	Todd	
							Watts		Torrance	
							Wilkinson		Willett	
									Wyatt	
23	21	16	27	14	17	26	29	8	30	23

N.B.—From the above statement it will be seen that **116** passed the Minor Examination in London from the Westminster College, whilst only **125** passed from all other sources.

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Have been organized, by which gentlemen engaged during the day, may be prepared in the Evening for the various Examinations of the Pharmaceutical Society.

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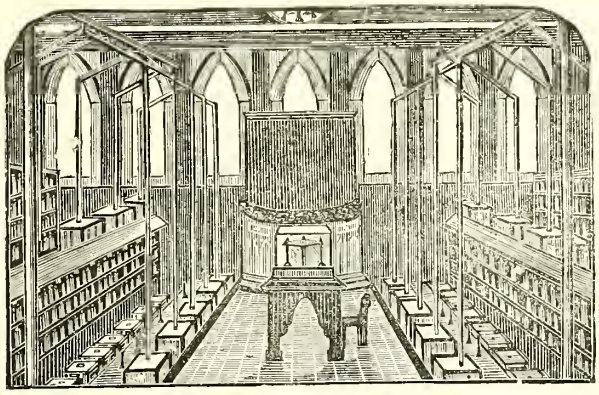
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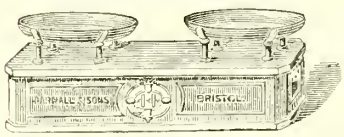
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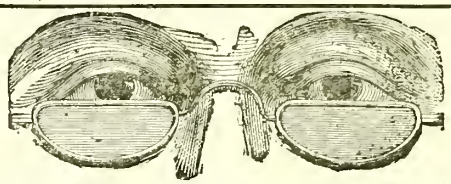
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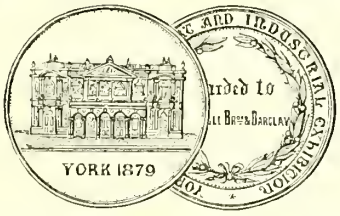
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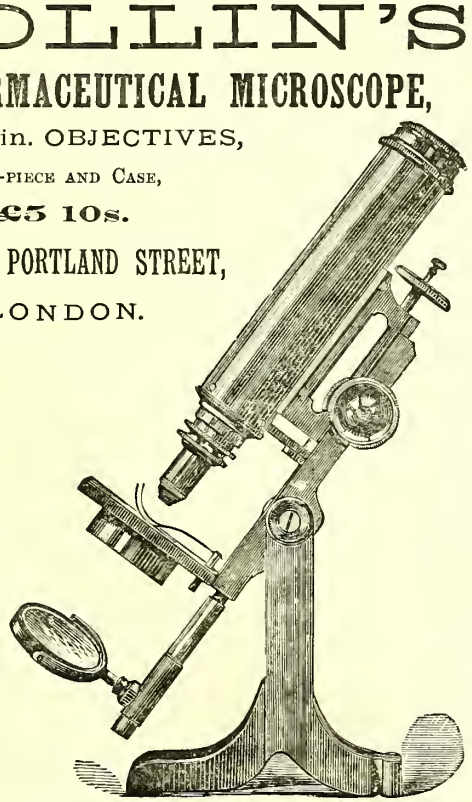
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THE MIDDLESEX HOSPITAL

MEDICAL SCHOOL.—The WINTER SESSION will OPEN on MONDAY, OCTOBER 3rd, at Three P.M., with an Introductory Address by Dr. R. DOUGLAS POWELL, after which the Prizes awarded during the previous Winter and Summer Sessions will be distributed. The ANNUAL DINNER of the past and present Students and their Friends will take place the same evening at St. James's Hall.

The Hospital contains 310 Beds, and there are special departments for Cancer, Diseases of the Eye, Women, and Syphilis; also Out-patients' Departments for Diseases of Children, the Throat and Ear, and Skin.

HOSPITAL STAFF AND LECTURERS.

Consulting Physicians—Dr. A. P. Stewart, Dr. Goodfellow, Dr. Henry Thompson, Dr. Greenhow, F.R.S.

Physicians—Dr. Cayley, Dr. Sydney Coupland, Dr. Douglas Powell.

Assistant Physicians—Dr. David Finlay, Dr. J. K. Fowler, Dr. C. Y. Biss.

Obstetric Physician—Dr. J. Hall Davis.

Physician to the Skin Department—Dr. Robert Liveing.

Assistant Obstetric Physician—Dr. Arthur W. Edis.

Consulting Surgeons—Mr. Shaw, Mr. Nunn.

Surgeons—Mr. Hulke, F.R.S., Mr. George Lawson, Mr. Henry Morris.

Assistant Surgeons—Mr. Andrew Clark, Mr. Robert Lyell.

Ophthalmic Surgeon—Mr. Wm. Lanz.

Aural Surgeon—Mr. Arthur Hensman.

Consulting Dental Surgeon—Mr. Tomes, F.R.S.

Dental Surgeon—Mr. Turner.

Assistant Dental Surgeon—Mr. Storer Bennett.

Other Lecturers—Mr. B. T. Lowne, Dr. Thorowgood, Mr. Foster, Mr. Henry Case.

Two Entrance Scholarships, value £25 and £20 per annum, respectively and a Science Scholarship value £50, will be competed for on September 30th and October 1st.

For further information, and for a Prospectus, apply to the Dean, or to the Resident Medical Officer at the Hospital.

ST. MARY'S HOSPITAL MEDICAL SCHOOL,
PADDINGTON, W.

The INTRODUCTORY LECTURE by G. P. FIELD, Esq., Monday, October 3rd, 1881, at 3.30 P.M.

MEDICAL OFFICERS AND LECTURERS.

Consulting Officers—Dr. Chambers, Sir James Alderson, M.D., F.R.S., Mr. Lane, Mr. Spencer Smith, Mr. White Cooper.

Physicians—Dr. Haudfield Jones, F.R.S., Dr. Sieveking, Dr. Broadbent.

Physicians in Charge of Out-patients—Dr. Cheadle, Dr. Shepherd, Dr. Lees.

Surgeons—Mr. Haynes Walton, Mr. J. R. Lane, Mr. Norton.

Surgeons in Charge of Out-patients—Mr. Owen, Mr. Page, Mr. Pye.

Assistant-Surgeon—Mr. A. J. Pepper.

Physician-Accoucheur—Dr. Alfred Meadows.

Assistant Physician-Accoucheur—Dr. Wiltshire.

Surgeon in Charge of the Ophthalmic Department—Mr. Anderson Critchett.

Aural Surgeon—Mr. Field. Surgeon-Dentist—Mr. Hayward.

Medical Tutor—Mr. Pepper.

Other Lecturers—Dr. Wright, F.R.S., Dr. Randall, Mr. Mivart, F.R.S., Rev. J. M. Crombie, Mr. Malcolm Morris.

The course of teaching at this School ensures careful and complete preparation for all the Examining Boards, the Public Services, and the higher University Examinations. Special instruction is given to Students preparing for the examinations of the University of London.

The MEDICAL TUTOR assists the Students in their Clinical Work and in preparing for the Final Examinations, so that the training of every individual Student is supervised. Ophthalmic, Aural, and Dental Surgery, Comparative Anatomy, Histology, and Pathology are carefully and systematically taught both by Lectures and Practical Demonstrations. There are also departments for the Diseases of Women and Children, of the Eye and Ear, of the Skin, and of the Throat.

SCHOLARSHIPS.—Two Scholarships of the value of £150 and £100. These Scholarships are awarded every year by open competition in Natural Science previous to entrance at the School. A Scholarship of £20 in Anatomy. A Scholarship of £40 in Pathology, carrying with it the appointment of Assistant Curator. These are awarded annually.

PRIZES.—Prizes are given in each class at the close of every Session.

APPOINTMENTS.—Three House Surgeoncies, each tenable for one year. A Resident Obstetric Assistantship, tenable for six months.

These Resident Medical Appointments are open to the Pupils without expense of any kind, and are equivalent to Four Scholarships of the annual value of £50.

For the Prospectus, apply to

A. B. SHEPHERD, M.D., Dean of the School.

KING'S COLLEGE, LONDON. — MEDICAL DEPARTMENT.

The WINTER SESSION will be OPENED on Monday, October 3rd, at Four P.M., when the Distribution of Prizes will take place, and an Address he given by Sir John Lubbock, Bart., M.P., F.R.S., D.C.L.

A SPECIAL COURSE of INSTRUCTION has been established for the Preliminary Scientific Examination at the University of London, including Inorganic Chemistry, Practical Chemistry, Practical Biology, Experimental Physics, Zoology, and Botany.

The following Entrance Scholarships will he given in October next, viz.:—

Two on the Warneford Foundation of £75 each, for previous education in General Literature and Science.

Two by the Clothworkers' Company, one of £100 and one of £50, for proficiency in Science only.

Two on the Sambrooke Foundation, viz., one of £60 and one of £40, for proficiency in Literature and Science.

During the ensuing Session there will he awarded five Medical Scholarships, viz., one of £80, one of £30, and three of £20, for Professional Efficiency. One for Chemistry, of £40; one of £50, for Resident Students only; and two Sambrooke Registrarships of £50 each.

Endowed prizes of the value of 65 guineas, and College prizes of the value of £60 are also awarded annually.

For Prospectuses and other information apply, personally or by post card, to J. W. Cunningham, Esq., King's College, London; or to Professor Bentley, Dean of the Department.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL,
Albert Embankment, London, S.E.

The WINTER SESSION 1881 and 1882 will commence on OCTOBER 1, when an Introductory Address will be delivered by Dr. Bernays, Ph.D., F.C.S., &c., at 3 p.m.

Two Entrance Science Scholarships of £100 and £60 respectively, open to all First Year's Students, will be offered for competition. The Examination will he held on October 5, 6, and 7, and the subjects will be Chemistry and Physics, with either Botany or Zoology at the option of the candidates.

Special Classes are held throughout the year for the Matriculation, Preliminary Scientific, and First M.B. Examinations of the University of London.

All Hospital Appointments are open to Students without extra charge. Scholarships and Money Prizes of considerable value are awarded at the Sessional Examinations, as also several Silver and Gold Medals.

The fees may he paid in one sum, or by instalments. Special entries may he made to Lectures or to Hospital Practice, and special arrangements are made for Students entering in their second or subsequent years, also for Dental Students, and for Qualified Practitioners.

Several medical practitioners and private families residing in the neighbourhood receive Students for residence and supervision, and a register of inspected and approved lodgings is kept in the Secretary's office.

Prospectuses and all particulars may be obtained from the Secretary, Dr. Gillespie.

W. M. ORD, M.D., Dean.

THE LONDON HOSPITAL AND MEDICAL COLLEGE.—HOSPITAL STAFF.

CONSULTING PHYSICIANS—Dr. Herbert Davies, Dr. Ramskill. CONSULTING SURGEONS—Mr. Luke, F.R.S., Mr. Curling, F.R.S. PHYSICIANS—Dr. Andrew Clark, Dr. Langdon Down, Dr. Hughlings-Jackson, F.R.S., Dr. Sutton, Dr. Fenwick, Dr. Stephen Mackenzie, Dr. Sansom. ASSISTANT-PHYSICIANS—Dr. Charlewood Turner, Dr. Gilbart Smith, Dr. Warner, Dr. Ralfe. SURGEONS—Mr. Hutchinson, Mr. Couper, Mr. Rivington, Mr. James Adams, Mr. W. Tay, Mr. McCarthy. ASSISTANT-SURGEONS—Mr. Reeves, Mr. Frederick Treves. OBSTETRIC PHYSICIAN—Dr. Palfrey. ASSISTANT-OBSTETRIC PHYSICIAN—Dr. Herman. OPHTHALMIC SURGEONS—Mr. James Adams, Mr. Waren Tay. AURAL SURGEON—Mr. A. Gardiner Brown. SURGEON-DENTIST—Mr. Ashley W. Barrett.

LECTURERS.

Medicine—Dr. Stephen Mackenzie. *Surgery*—Mr. James Adams. *Operative Surgery*—Mr. James Adams. *Practical Surgery*—Mr. Reeves. *Anatomy*—Mr. Rivington. *Practical Anatomy*—Mr. Frederick Treves. *Physiology and Practical Histology*—Mr. McCarthy. *Chemistry*—Dr. C. Meymott Tidy. *Comparative Anatomy*— *Pathology*—Dr. Sutton. *Midwifery*—Dr. Palfrey. *Toxicology*—Mr. J. E. D. Rodgers. *Botany*—Dr. F. Warner. *Medical Jurisprudence*—Dr. C. Meymott Tidy. *Materia Medica*—Dr. Prosser James. *Diseases of the Eye*—Mr. J. Couper. *Diseases of the Throat*—Dr. Morell Mackenzie. *Diseases of the Ear*—Mr. A. Gardiner Brown. *Anatomy and Pathology of the Teeth*—Mr. Ashley W. Barrett.

The SESSION 1881-82 will COMMENCE on SATURDAY, October 1st 1881. Fee for Lectures and Hospital Practice, 90 guineas in one sum, or 100 guineas by three instalments. The Hospital contains nearly 800 beds. Number of in-patients during 1880 was 6,312; out-patients, 55,767.

The Resident and other Hospital appointments are free to full Students. The Resident appointments consist of five House Physiciancies, four House Surgeoncies, and one Accoucheurship. Also two Dresserships and two Maternity Assistantships.

Two Entrance Science Scholarships, value £60 and £40, and Two Buxton Scholarships, value £30 and £20, will be offered for competition at the end of September, to new Students; entries for these should be made on or before September 20th.

The Letheby Prize, value (at least) £35, for Proficiency in Chemistry.

A Scholarship, value £20, in Human Anatomy and Physiology, to first year's Students.

A Scholarship, value £25, in Anatomy, Physiology, and Chemistry, to second year's Students.

A Scholarship, value £20, in Clinical Medicine.

A Scholarship, value £20, in Clinical Surgery.

A Scholarship, value £20, in Clinical Obstetrics.

The Duckworth Nelson Prize, value £10 (Biennial), in Clinical Medicine and Surgery.

Prizes, value £60, to Dressers of out-patients in Minor Surgery.

Special entries for Medical and Surgical Practice are made.

The London Hospital is now in direct communication by Rail and Tram with all parts of the Metropolis.

For Prospectus and particulars apply personally or by letter to

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LONDON HOMŒOPATHIC HOSPITAL,
Great Ormond Street, Bloomsbury.

Unendowed. Seventy Beds. Funds urgently needed. Trained Nurses sent out to attend private patients. Wards set apart to receive paying patients.

For further information apply to the Hospital. By order,

G. A. CROSS, Secretary.

GUY'S HOSPITAL.

THE MEDICAL SESSION COMMENCES ON MONDAY, OCTOBER 3RD.

The Hospital now contains 695 beds, and includes wards for Obstetric, Ophthalmic, and other special departments.

THE MUSEUM OF ANATOMY, PATHOLOGY, AND COMPARATIVE ANATOMY contains 11,000 Specimens, 4,500 Drawings and Diagrams, an unique collection of Anatomical Models, and a series of 600 Models of Skin Diseases.

APPOINTMENTS.—The House-Surgeons and House-Physicians, the Obstetric Residents, Clinical Assistants and Dressers, are selected from the Students, according to merit, and without payment. There are also a large number of Junior Appointments, every part of the Hospital Practice being systematically employed for instruction.

ENTRANCE SCHOLARSHIPS.—Open Scholarship, of One Hundred and Twenty-five Guineas, in Classics, Mathematics, and Modern Languages. Open Scholarship, of One Hundred and Twenty-five Guineas, in Chemistry, Physics, Botany, and Zoology.

PRIZES, &c.—Six Scholarships, varying in value from £10 to £50 each, for general proficiency in Medical Study. The Joseph Hoare Prizes; the Treasurer's Gold Medal in Medicine; the Treasurer's Gold Medal in Surgery; the Gurney Hoare Prize of £25, for Clinical Study; the Beaney Prize of 30 guineas for Pathology; the Sands Cox Scholarship of £15 per annum for three years for Physiology; the Michael Harris Prize of £10 for Anatomy.

For further information apply to the Dean.

Guy's Hospital, London, S.E., July, 1881.

OWENS COLLEGE, MANCHESTER.

MEDICAL DEPARTMENT.
SESSION 1881-2.

Dean of the Medical School—ARTHUR GAMGEE, M.D., F.R.S.

WINTER SESSION.

PHYSIOLOGY AND HISTOLOGY—Brackenbury Professor Arthur Gamgee, M.D., F.R.S.

ANATOMY, DESCRIPTIVE AND PRACTICAL—Professor Morrison Watson, M.D., F.R.S.E.

COMPARATIVE ANATOMY—Professor A. Milnes Marshall, M.A., D.Sc.

CHEMISTRY—Professor Henry E. Roscoe, Ph.D., LL.D., F.R.S.

ORGANIC CHEMISTRY—Professor C. Schorlemmer, F.R.S.

CLINICAL MEDICINE—Professor William Roberts, M.D., F.R.S., F.R.C.P.

PRINCIPLES AND PRACTICE OF MEDICINE—Professor John E. Morgan, M.D., F.R.C.P.

SURGERY—Professor Edward Lund, F.R.C.S.; Assistant Lecturer F. A. Southam, M.B., F.R.C.S.

PRACTICAL SURGERY—Thomas Jones, M.B., B.S., F.R.C.S.

PATHOLOGY AND MORBID ANATOMY—Prof. J. Dreschfeld, M.D., M.R.C.P.

SURGICAL PATHOLOGY—Alfred H. Young, M.B., F.R.C.S.

SUMMER SESSION.

PRACTICAL PHYSIOLOGY AND HISTOLOGY—Brackenbury Professor A. Gamgee, M.D., F.R.S.

PRACTICAL ANATOMY—Professor Morrison Watson, M.D., F.R.S.E.

MIDWIFERY AND DISEASES OF WOMEN—Professor John Thorburn, M.D., M.R.C.P.

DISEASES OF CHILDREN—Henry Ashby, M.D.

MATERIA MEDICA AND THERAPEUTICS—Prof. D. J. Leech, M.D., M.R.C.P.

MEDICAL JURISPRUDENCE—C. J. Cullingworth, M.R.C.P.

HYGIENE AND PUBLIC HEALTH—Arthur Ransome, M.D., M.A.

PRACTICAL MORBID HISTOLOGY—Profesor J. Dreschfeld, M.D., M.R.C.P.

MENTAL DISEASES—George W. Monld, M.R.C.S.

OPHTHALMOLOGY—David Little, M.D.

OPERATIVE SURGERY—Thomas Jones, M.B., B.S., F.R.C.S.

PRACTICAL CHEMISTRY—Professor H. E. Roscoe, LL.D., F.R.S.

COMPARATIVE EMBRYOLOGY—Professor A. Milnes Marshall, M.A., D.Sc.

BOTANY—Professor W. C. Williamson, F.R.S.

Prospectuses for the Session 1881-2 will be forwarded on application to the Registrar.

J. HOLME NICHOLSON, Registrar.

ROYAL COLLEGE OF SCIENCE,
STEPHEN'S GREEN, DUBLIN.

SCIENTIFIC AND TECHNICAL EDUCATION.

SESSION 1881-82.

This College supplies a complete Course of Instruction in Science, as applied to the Industrial Arts, especially those which may be classed broadly under the heads of CHEMICAL MANUFACTURES, MINING, and ENGINEERING.

A Diploma of Associate of the College is granted at the end of the Three Years' Course.

There are Four Royal Scholarships of the value of £50 each yearly, with free education, including Laboratory Instruction, tenable for two years. Two become vacant each year. They are given to Students who have been a year in the College.

The Fees are £2 for each Course, or £10 for all the Courses of each year, with the exception of Laboratory Practice.

CHEMISTRY (THEORETICAL AND PRACTICAL), METALLURGY, &c.—Professor HARTLEY, F.C.S., Dean of Faculty.

MATHEMATICS, MECHANICS, AND MECHANISM—Professor HENNESSY, F.R.S., M.R.I.A.

DESCRIPTIVE GEOMETRY, DRAWING, ENGINEERING, AND SURVEYING—Professor PIGOT, C.E., M.R.I.A.

EXPERIMENTAL PHYSICS (THEORETICAL AND PRACTICAL)—Professor BARRETT, F.R.S.E., F.C.S.

MINING AND MINERALOGY—Professor O'REILLY, C.E., M.R.I.A.

BOTANY—Professor M'NAB, M.D., F.L.S.

ZOOLOGY—Professor HADDON, M.A.

GEOLOGY—Professor HULL, M.A., F.R.S., LL.D.

PALÆONTOLOGY—Mr. BAILY, F.G.S., M.R.I.A.

The Chemical and Physical Laboratories and Drawing School are open daily for Practical Instruction.

Fee for Chemical Laboratory, £2 per Month, or £12 for Session. Fee for Physical Laboratory, £1 per Month, or £6 or Session. Fee for Drawing School, £3 for Session.

The SESSION COMMENCES on MONDAY, OCTOBER 3rd.

Programmes may be obtained on application at the College, or by letter or post card, addressed to the Secretary, Royal College of Science, Stephen's Green, Dublin.

Professor J. P. O'REILLY, Secretary *pro tem.*

DISEASES OF THE EAR.—DR. KIRK DUNCANSON will commence his WINTER COURSE of LECTURES on FRIDAY, 11th NOVEMBER, at 4 p.m.

CLINICAL INSTRUCTION AT THE EAR DISPENSARY, 6 Cambridge Street, Lothian Road, on Mondays and Thursdays, from 12 to 1 o'clock. Fee £2 2*s*. LECTURES, Fridays at 4 p.m.

22 Drumsheugh Gardens, Edinburgh, September 1881.

SCHOOL OF MEDICINE, EDINBURGH.—

Founded 1505.—The Lectures qualify for the University of Edinburgh, and the other Universities; the Royal Colleges of Physicians and Surgeons of Edinburgh, London, and Dublin; and the other Medical and Public Boards.

WINTER SESSION, 1881-82.

On 3rd October the Practical Anatomy Rooms and Chemical Laboratories will be opened.

On 24th October the Inaugural Address will be delivered by Dr. A. G. Miller, at Eleven o'clock.

On 25th October the Lectures will be commenced.

Anatomy — Practical Anatomy, Course of Lectures, Course of Demonstrations — Mr. J. Symington.

Anatomy — Practical Anatomy, Course of Lectures, Course of Demonstrations — Mr. Charles W. Catheart.

Chemistry — Lectures, Practical Chemistry, Analytical Chemistry — Dr. Stevenson Macadam.

Chemistry — Lectures, Practical Chemistry, Analytical Chemistry — Mr. J. Falconer King.

Chemistry — Practical Chemistry, Analytical Chemistry — Mr. Ivison Macadam.

Chemistry — Lectures, Practical Chemistry, Analytical Chemistry — Dr. Drinkwater.

Chemistry — Lectures, Practical Chemistry, Analytical Chemistry — Mr. J. Y. Buchanan.

Practice of Physic—Dr. John Wyllie.
Practice of Physic—Dr. J. O. Affleck.
Practice of Physic—Dr. Byron Bramwell.
Pathology and Morbid Anatomy—Dr. Bryan Charles Waller.
General Pathology—Dr. J. B. Buist.
Systematic Pathology, Practical Pathology — Dr. D. J. Hamilton.
Surgery—Dr. P. Heron Watson.
Surgery—Mr. Chiene.
Surgery—Mr. Duncan.
Surgery—Dr. A. G. Miller.
Midwifery and Diseases of Women and Children—Dr. Angus Macdonald.
Midwifery and Diseases of Women and Children—Dr. Charles Bell.
Institutes of Medicine—Dr. James.
Institutes of Medicine—Mr. James Hunter.
Royal Infirmary—
Clinical Medicine—Drs. George W. Balfour, Claud Muirhead, and Brakenridge; Dr. Angus Macdonald (for Diseases of Women).
Clinical Medicine—Tutorial Class for Physical Diagnosis.*
Clinical Surgery—Mr. Joseph Bell.
Clinical Surgery—Tutorial Class for Practical Surgery.*
Medical Jurisprudence and Public Health—Dr. Littlejohn.
Materia Medica and Therapeutics—Dr. Francis W. Moinet.
Materia Medica and Therapeutics
Practical Materia Medica, including Practical Pharmacy — Dr. William Craig.
Natural History (Zoology and Comparative Anatomy)—Dr. Andrew Wilson.
Diseases of the Ear—Dr. Kirk Duncanson.
Diseases of the Eye—Dr. John Robertson.
Vaccination—Dr. Husband.
Diseases of Children—Dr. James Andrew.
Diseases of Children—Dr. James Carmichael.
Practical Midwifery—Dr. Angus Macdonald.
Practical Gynæcology—Dr. Halliday Croom.
Practical Midwifery—Dr. Charles Bell.

* Under the superintendence of the Lecturers on Clinical Medicine and Surgery.

SUMMER SESSION, 1882.

On MAY 1st Classes will commence in Practical Anatomy and Demonstrations, Practical and Analytical Chemistry, Materia Medica and Therapeutics, Practical Materia Medica, including Practical Pharmacy, Midwifery, and Diseases of Women and Children, Medical Jurisprudence and Public Health, Clinical Medicine, Clinical Surgery, Practical Physiology, Practical Pathology, Natural History (Zoology and Comparative Anatomy), Diseases of the Eye, Practical Medicine and Diagnosis, Medical Anatomy and Physical Diagnosis, Diseases of the Ear, Vaccination, Diseases of Children, Insanity, Diseases of the Skin, Operative and Practical Surgery, and Practical Midwifery.

The minimum cost of the education in this School of Medicine for the Double Qualification of Physician and Surgeon from the Royal College of Physicians and Surgeons, including the Fees for the Joint Examination, is £95, which is payable by yearly instalments during the period of study; whilst the minimum cost for the Single Qualification of either Physician or Surgeon, including Fee for Examination, is £85.

STEVENSON MACADAM, Secretary.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

PRELIMINARY EXAMINATION IN GENERAL EDUCATION.

The following will be the periods of Examination during Session 1881-2:—FRIDAY, OCTOBER 21, 1881; FRIDAY, MARCH 31, FRIDAY, JUNE 30, and FRIDAY, SEPTEMBER 8, 1882. On each occasion the Examination will be continued on the succeeding day. Lists of Subjects and all necessary information may be had on application to the Secretary.

ALEXANDER DUNCAN, B.A., *Secretary.*

Faculty Hall, 242 St. Vincent Street, Glasgow, September, 1881.

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SESSION 1881–82.

I.—DEPARTMENT OF SCIENCE AND ARTS.

The Session will commence on Monday, the 3rd of October, 1881.

Students under sixteen years of age will be required to pass a Preliminary Examination.

II.—EVENING CLASSES.

These will commence on Wednesday, the 5th of October, 1881.

The Calendar of the ensuing Session, containing full information as to the aim and objects of the College, and the courses of instruction, is now ready, and may be obtained from the publishers, Messrs Cornish Brothers, Birmingham and Manchester, price 1*s*.

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LEEDS SCHOOL OF MEDICINE.

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AT 2 O'CLOCK P.M.,

When the Introductory Address will be delivered.

STAFF OF PROFESSORS AND SUBJECTS TAUGHT:—

VETERINARY MEDICINE AND SURGERY:
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Professor JAMES HUNTER, F.R.C.S.E., L.R.C.P.E., Lecturer on Physiology, Edinburgh Medical School.

ANATOMY:
Professor LEWIS, M.R.C.V.S.

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Mr. FALCONER KING, F.C.S., F.I.C., City Analyst.

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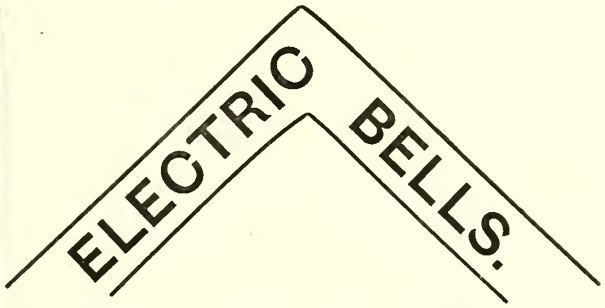
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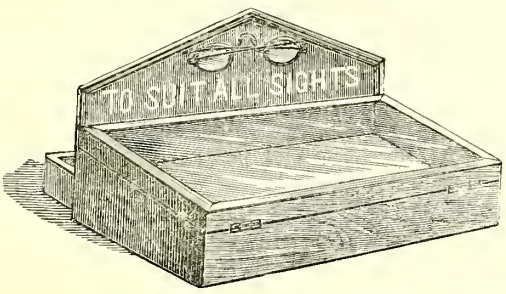
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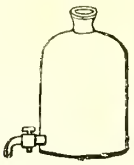
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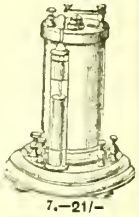
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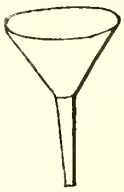
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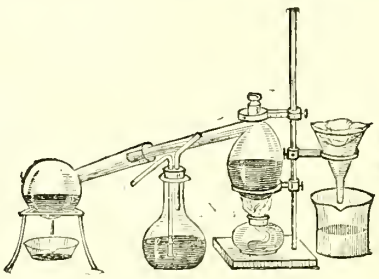

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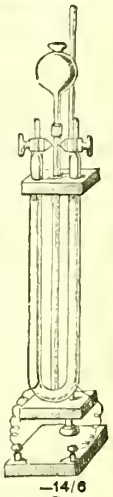
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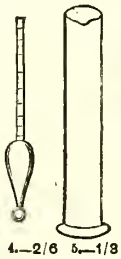
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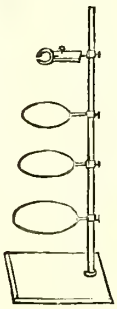

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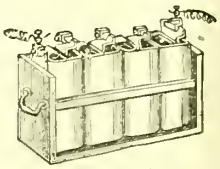

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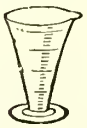
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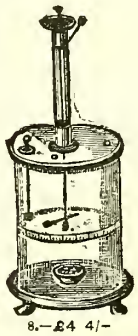

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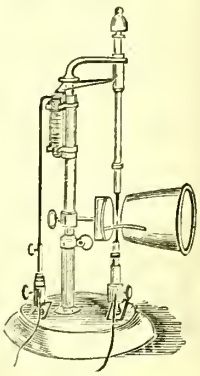
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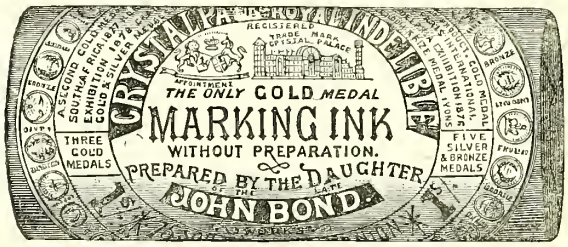
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CHLORO-LINSEED COUGH LOZENGES.—A medicated Linseed Extract, for out-door use, on leaving a heated room, &c. Demulcent, Expectorant, Warming and Soothing. Packets, 6*d*.

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Worthy of Recommendation, and well known.

For Circulars, Show Cards, Specimens, &c., address:—

KAY BROTHERS, Stockport.

Sold by all the Wholesale Druggists, Sundriesmen, and Medicine Vendors.



PAINLESS CORN AND WART PAINT, *contains no Arsenic or any Injurious Ingredient*. This preparation has the advantage over similar preparations in being quite Painless. It is an entirely new mixture, and though only discovered quite recently, it already commands a large sale, and is rapidly superseding all similar preparations. Testimonials received from most respectable firms.

DIRECTIONS FOR USE.—Apply a thick coating of the Paint, and allow it to remain for 6 or 7 days; then detach the destroyed Corn (or Wart) with the nail, or a dull knife. *In Bottles, with Camel's Hair Pencil, 6d. each, sample, by post, 6d.*

PREPARED BY

J. HARGREAVES & SON, Chemists, PRESTON.

WHOLESALE AGENTS.—London: Burgoyne, Burbidges & Co., Coleman Street; Messrs. Barclay & Sons, Farringdon Street; Mr. H. C. Mason, Australian Avenue. York: Messrs. Clarke, Blensdale, Bell & Co. Liverpool: Messrs. Ayrton & Saunders, Duke Street. South Norwood: Messrs. Cullen & Co. Blackpool: Mr. J. Jackson, Talbot Road. Manchester: Whitehead, Holbrook & Co., New Brown Street. Stockport: Kay Brothers. And most Wholesale Druggists.

ROBARE'S AUREOLINE,

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GOLDEN HAIR WASH.

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Supplied in Kiln Dried Lumps or finely ground. Contracts for Regular Supply taken at low prices. Impalpable Powder specially for Oil and Colour Men and Domestic uses.

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The Bottles well filled, the Article well got up, and the Quality guaranteed.

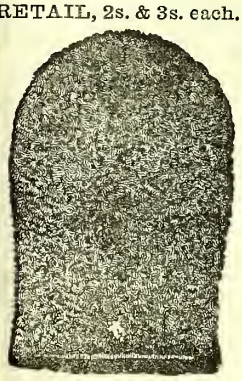
6d.	Size in 1 dozen Boxes	3s. 0d. per dozen.
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FLESH RUBBER.
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INDIA RUBBER FLESH GLOVE AND RUBBER.

This is an ENTIRELY NEW APPLICATION OF INDIA RUBBER, and lovers of the Bath pronounce them

THE ONLY EFFICIENT FLESH GLOVE AND RUBBER.

Being always absolutely Rough in hot or cold water, **they are altogether unique.** They **cannot scratch the body,** and produce a fine lather with Soap. They are manufactured from **Pure India Rubber** (the properties of which are peculiarly cleansing and genial to the skin), and retain their strength for many years.
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I. LIVERMORE, Patentee.

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RIMMEL'S TOILET VINEGAR, specially recommended as an adjunct to the daily ablutions or bath, which it renders doubly pleasant and salubrious, as a reviving scent for crowded assemblies, and as a powerful disinfectant for apartments and sick rooms, especially during epidemics. Its numerous and useful properties render it an indispensable requisite to persons travelling, and to all families. It is particularly appreciated in warm climates for its tonic and bracing influence on the system, and its purifying anti-mephitic qualities. No one should go to sea without it. In bottles with patent hermetic stoppers, in wicker or pocket bottles for travelling, or in aspersors.

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DR. HARLAND'S HAIR DYE

(ONE LIQUID)

Changes Grey or Faded Hair to any shade of Black or Brown by a perfectly natural and healthy process, and gives to the Hair a permanent colour which will not wash out.

It is perfectly harmless and free from smell. It renders the Hair silken and glossy without the aid of grease, promotes a luxuriant growth, and prevents baldness.

PRICE 3s. 6d.; *or sent free, packed secure from observation, with printed directions for use, for 4d. extra.*

DR. HARLAND'S HAIR DYE

Restores Grey or Faded Hair to its original colour, or any shade of colour that may be desired, without trouble, inconvenience, or expense, and is the best and cheapest, having been in use and given the greatest satisfaction for upwards of 60 years. It nourishes, preserves, and beautifies the hair, prevents its falling off, and gives an appearance of youth to persons however advanced in years. This celebrated preparation, the only perfect one of the kind, was for 35 years sold at half-a guinea, but now by an improved process of manufacture (owing to the advance of chemical knowledge) is vended at 3*s.* 6*d.* Hundreds of Testimonials and 26 Prize Medals.

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IT MAY BE ORDERED OF ANY WHOLESALE HOUSE IN THE TRADE.

GREENSILL'S FAR-FAMED MONA BOUQUET

THE ORIGINAL AND ONLY GENUINE.

The great popularity of this exquisite Perfume is a proof of its excellence and superior qualities.

T. S. GREENSILL, Chemist, Douglas, Isle of Man,

Inventor, Proprietor, and Maker.

AGENTS—LONDON: Sanger; Maw; Edwards; Newbery; Mather; Barclay; Whittaker & Grossmith; Hovenden; Parton & Osborne; Butler & Crispe; Tidman & Son; Barron & Squire; Wright, Layman & Umney; Jno. Thompson; Burgoyne, Burbidge & Co.; Grimwade, Ridley & Co.; Raiss Brothers. LIVERPOOL: Evans, Sons & Co.; Clay, Dod & Case; B. Sumner & Co.; Raimes & Co. MANCHESTER: J. Woolley; Lynch & Bateman; Jewsbury & Brown; Mather. EDINBURGH: Duncan & Flockhart. DUBLIN: M'Master; Hodgson. YORK: Sutcliffe & Headley; Clark, Bleasdale. THIRSK: Wm. Fogg.tt. BRISTOL: Ferris & Co. LEEDS: Goodhall & Backhouse. BIRMINGHAM: Churchill & Son; P. Harris & Co.; Parton & Osborne; Southall Bros. & Barclay.

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Introduced in 1852.

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JAMES'S HERBAL OINTMENT, for the Cure of Pimples, Black Specks, Blotches, &c., and taking away Tan Freckles, Sunburn, &c. Sold by all Chemists, 1/1½ and 2/9 per box.

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For the instant removal of Superfluous Hair. Sold by all Chemists, 1/- per box.

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For Promoting the Growth of the Hair, Whiskers, Beard, Moustachios, Eyebrows, and Eyelashes. Sold by all Chemists, 1/- and 2/- per box.

These Articles are well worthy the attention of Chemists, Wholesale Houses, and others, as they are being well advertised.

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Prepared only by WILLIAM DARLING, Chemist, Manchester. May be had from S. Maw, Son, & Thompson; Barclay & Sons; F. Newbery & Sons; Sanger & Sons; and any Wholesale House in London. Price 2*s.* per Box, and Family Jars 10*s.* each.

OKELL'S ORIGINAL MONA BOUQUET

Retail, 1/, 1/9, and 3/6; Wholesale, 9/, 15/, and 30/ per doz.

This much-admired Perfume (prepared by the Widow of the late Joseph Okell), may be obtained from the leading Patent Medicine Houses, Wholesale Druggists, and Druggists' Sundry Dealers.

Applications for WHOLESALE Agencies to be made to the SOLE CONSIGNEE, **THOMAS WEST, Chemist, Stretford, Manchester.**

A PERFECT BOON TO MOTHERS!

ROGERS' "NURSERY" HAIR LOTION.

One application is guaranteed to destroy all Nits and Parasites in Children's Heads, and immediately allay the Itching and Irritation.

It is now used in Thousands of Families with the greatest success, and all who have tried it are delighted with the effect, and declare it to be worth A GUINEA A BOTTLE.

PREPARED ONLY BY

WILLIAM ROGERS,

CHEMIST,

BEN JONSON ROAD, STEPNEY, E.

Sold in large Bottles, price ONE SHILLING. Sample Bottle, 7*d.*

SOLD BY ALL CHEMISTS AND PERFUMERS.

Observe! Genuine only in Yellow Wrapper, White Label.

WHOLESALE AGENTS.—Barclay & Son; Edwards & Son; Maw, Son & Thompson; Millard & Son; Sanger & Sons; Thompson, 121 New North Road; Butler & Crispe, Cheapside; Hovenden & Sons, City Road.

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WHITAKER & GROSSMITH'S PURE WHITE GLYCERINE SOAP.

Richly Perfumed, and guaranteed to contain the necessary quantity of GLYCERINE for effectually imparting to the SKIN the softening and healing properties for which it is so justly famed. 1s. 6d. Boxes of Three Tablets, 12s. per Dozen Boxes.

SELECT TOILET PREPARATIONS, extensively increasing in demand, which attests their excellent quality.

TOILET SOAPS.	Per doz.	BOUQUETS.	Per doz.	POMADES, &c.	Per doz.
Cent-Fleur (copyright)	2/ 6 *Boxes of 3 tablets* 20/	*Cent-Fleur (copyright)*	*In Glass Stoppered or Sprinkling cap Bottles.* 12/	*Cent-Fleur (copyright)* ... 8/,	12/ & 20/
Jockey Club ,,	1/6 ,, 12/	*Jockey Club Bouquet*...		*Petroleum Pomade* ...	12/ & 18/
Sandringham ,,	1/6 ,, 12/6	*Ess Bouquet*	20/	*Brilliantine* 8/,	12/ & 20/
Eucalyptus Oil ,,	1/6 ,, 12/	*Frangipanni*		*Anglo Eau de Cologne* ...	8/ & 12/
Wild Thyme (Thymol)	1/ ,, 8	*Pearl of Perfumes* ...	28/	*Eucalyptus Vinegar* ...	12/ & 20/
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WHITAKER & GROSSMITH, 22 SILK STREET (REMOVED FROM 120 FORE STREET), **LONDON, E.C.**

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6d. DYES..(14 to the Doz.)..In ½-gross Counter Cases	48/- Gross.
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3d DYES..On ½ Gross Cards	21/- Gross.
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E. CRAWSHAW & CO.,

80 FANN STREET, ALDERSGATE STREET, LONDON, E.C.

ANTITARTAR

For Cleaning, Preserving, and Beautifying Artificial Teeth and Plates.

This Preparation acquires a ready sale, as Chemists are continually asked, "What shall I use for cleaning my artificial teeth." Plates that have become corroded and discoloured in the mouth are speedily restored to their former brilliancy and polish.

Sold in neat Tin Boxes, Retail 2- each; Wholesale Price, 18/- per dozen.

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WHOLESALE AGENTS.—Messrs. BARCLAY & SONS, Farringdon Street, London, E.C.; JAMES SLIPPER, Pharmaceutical Chemist, 87 Leather Lane, and 14 & 15 Dorrington Street, Holborn, London, E.C.

Bills, with Name and Address, may be had on application.

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AS USED AT ALL THE GOVERNMENT MUSEUMS.

Suited for any substance, from glass and china to leather, wood, or iron, and the articles joined bear washing in boiling water.

The large range of materials to which this cement is applicable, its transparency, strength, and facility in use, and the readiness with which it adheres, renders it, without doubt, THE MOST USEFUL EVER INVENTED. It is equally applicable to articles of the coarsest or the most delicate construction.

The great success which attended its introduction, now more than 20 years ago, has given rise to a host of imitations, under as many various titles, some of these being of an exceedingly crude character, and most unsatisfactory to both vendor and buyer. The above celebrated Cement is uniformly prepared and neatly put up, and is guaranteed to remain unchanged in any climate.

Professor ARCHER, Edinburgh.—"I can testify most unhesitatingly to its great utility in the various occasions which continually arise in Museum work for a first-rate Cement. I have invariably found yours superior to all others, and have extensively recommended its use to all my friends."

Sold in bottles at 6d. and 1s. (equal to three of the smaller).

FOULKES' TOILET & NURSERY POWDER.

IMPALPABLE AND DELICATELY PERFUMED.

This unique Powder possesses the emollient properties of fullers' earth, free from colour, and in a high condition of purity.

Dr. ALEX. MILNE, Edinburgh, in his recent book entitled: "The Child, and how to Nurse it," says of this favourite powder, "WE RECOMMEND IT IN PREFERENCE TO ALL OTHERS."

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W. J. FOULKES, OPERATIVE CHEMIST, BIRKENHEAD.

DRUGS, CHEMICALS & PHARMACEUTICAL PREPARATIONS.

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Large Buyers are requested to write for quotations.

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Beg respectfully to notify the removal of their Factory from 55 HOLBORN VIADUCT, to more commodious premises at

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WHERE THEY REQUEST ALL ORDERS MAY BE SENT.

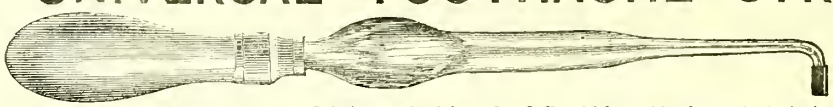
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Edison's Starch Enamel, 1*d*. packets	7/	,,	
,, ,, 3*d*. ,,	21/	,,	
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Elephantine Cement, 1*d*. bottles on cards	7/	,,	
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Insect Powder, 1*d*. boxes, in ½ gross wood boxes	7/	,,	
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,, 6*d*. tins, in ½-gross wood boxes	42/	,,	
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SPECIAL NOTICE.—Whereas, it has come to the knowledge of the proprietors of Sands' Manufacturing Company that unprincipled persons are representing themselves as having purchased this business from the original Alfred Sands, a reward of £20 will be paid on the conviction of any person making any such false statements; the business established by the late Alfred Sands being now carried on wholly and solely at **121 Goswell Road, London, E.C.**

THE UNIVERSAL TOOTHACHE SYRINGE

Retail, 6d. each.



Wholesale, 4s. per dozen.

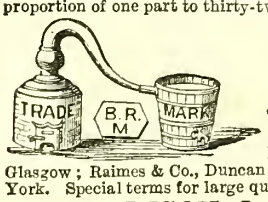
Is a great improvement upon the "DENTAL SYRINGE," as the fluid is contained in a *glass bulb*, which enables its contents to be seen, also prevents the liability to evaporation through long keeping or *exposure*.

THE UNIVERSAL CORN AND WART PENCIL.

1 doz. mounted on a handsome Illustrated Show-Card, Retail, 6d. each; Wholesale, 3s. 6d. per doz. It is especially adapted for Export Trade, and may be safely sent to the hottest climates, as each glass tube is hermetically sealed and enclosed in a cardboard case.

N.B.—Both the above are exempt from Stamp Duty by permission of the Board of Inland Revenue.

CONCENTRATED WATERS.—One Ounce of these Waters added to Forty Ounces of Distilled Water forms a clear Medicated Water (without filtering), similar in every respect to those prepared according to the directions of the British Pharmacopœia, and free from all Chemical impurity. They are prepared to supply a want long felt by Chemists and Medical Men, and by their uses fresh supply of any of the Medicinal Waters may be obtained at a moment's notice. They are not affected by age in any climate. N.B.—Used in the proportion of one part to thirty-two of water they represent the Medicinal Waters of the *United States Pharmacopœia*.



	Per lb.		Per lb.		Per lb.
Aqua Anethi, Concent.	4/0	Aqua Cinnam. Ver. Concnt.	6/0	Aqua Fœniculi, Concent.	4/0	Aqua Pimentæ, Concent.	4/0
,, Anisi, ,,	4/0	,, Cassiæ ,,	4/0	,, Menth. Pip. ,,	4/0	,, Rosæ ,,	8/6
,, Camphoræ ,,	4/0	,, Flor. Aurant. ,,	8/6	,, Ang. Con.	6/0	,, Rosæ Virgin ,,	10/6
,, Carui ,,	4/0	,, Flor. Sambuci ,,	8/6	,, Virid. ,,	4/0		

The above are put up in Bottles of ½lb. or 1lb. and upwards, each of which has the Inventor's Protection Label over cork.

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B. ROBINSON, Operative Chemist, Distiller and Brewer of British Wines, Manchester.

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Maw's Incorrodible Metallic, each in handsomely labelled box,—

No.	1	2	3	4	5	6	7	8
	10/-	21/-	30/-	32/-	40/-	45/-	50/-	56/- per doz.
Dwarf						No. 1	2	3
						24/-	30/-	40/- per doz.

	£	s.	d.
Maw's Scarf, Silver-plated ... ... per doz.	3	4	0
Ditto Gilt ... ... ,,	4	16	0
Maw's Æthereon (full-sized instrument)—Silver-plated, in paper cases ... ... ,,	2	0	0
Maw's Æthereon (full-sized instrument)—Gilt, in cloth cases ,,	3	4	0
Maw's Micro-Æthereon (diminished instrument)—			
Silver-plated, in morocco cases ... ... ,,	2	0	0
Gilt, in morocco cases ... ... ,,	3	4	0
Maw's Cork, in neat boxes ... ... ,,	0	6	0
The Cloud, in neat boxes ... ... ,,	0	8	0

RESPIRATORS OR PNEUMOCLIMES—JEFFREY'S PATENT.

	Superior, Richly Gilt.		Standard, Ordinary.		Common Materials.	
	Wholesale, each.	Retail, each.	Wholesale, each.	Retail, each.	Wholesale, each.	Retail, each.
Dwarf, in cardboard boxes	4/8	7/0	3/8	5/6	2/4 1/11	3/6 2/6
Himalene, highly finished, gentlemen's with Shawl Scarf; also removable, for using in the hand	10/0	15/0	5/4	8/0	3/4	5/0
Himalene Promenade, to be held in the hand or suspended	6/0	9/0	4/0	6/0	...	...
Nasal, variable power, ladies' or gentlemen's...	...	...	7/0	10/6	...	...
Oral, low power, ladies' or gentlemen's...	6/0	9/0	4/8	7/0	...	...
Oral, second or full power, ladies' or gentlemen's	8/0	12/0	5/8	8/6	3/0	4/6
Oral, ditto children's ...	...	...	3/8	5/6	...	...
Orinasal, variable power, medium to low, ladies' or gentlemen's	9/4	14/0	7/0	10/6	4/0	6/0
Orinasal, variable power, medium to low, children's	...	...	4/4	6/6	...	...

S. MAW, SON & THOMPSON,

7 to 12 ALDERSGATE ST., LONDON.

IMPORTANT.

Young's Corn Plasters.

72 Clerkenwell Road, London, E.C.
(Removed from Carthusian Street), *August 15th*, 1881.

It has come to my knowledge that certain persons have been falsely alleging that Young's Arnicated Corn and Bunion Plasters are no longer made, that the business has been abandoned, and that there are now no Young's Corn Plasters.

These statements are FALSE, *and legal proceedings will be taken against any person or persons spreading these or any other reports likely to damage my business.*

The facts of the case are as follows:—

In August, 1879, I, George Pattison, purchased the business of Henry Young, the original inventor of the Plasters known as Young's Arnicated Corn and Bunion Plasters, together with all his proprietary rights, manufacturing plant, stock, recipes, materials, labels, and printed matter relating to or in any way concerned in the manufacture and sale of these Plasters.

I also secured and retained the services of all the employés who had been engaged in making the Plasters.

And to meet the requirements of the Inland Revenue authorities I slightly altered the labels of the Plasters, with which labels they are now satisfied; and from the time of my acquiring this business I have continued the manufacture and sale of these Plasters.

I hereby declare *that I am the sole and only proprietor of the business of the late Henry Young, the original inventor of the Arnicated Corn and Bunion Plasters; that I am now manufacturing and supplying the said Plasters; and that I carry on this business under the firm, style, and title of Henry Young, at the above address; and that it is my intention to forthwith commence legal proceedings against all persons attempting to injure my business or the sale of the Plasters by false or misleading statements with reference thereto.*

(*Signed*) **GEORGE PATTISON,**
Successor to the business of and trading as
HENRY YOUNG.

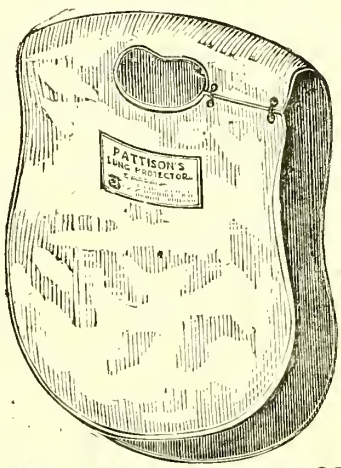
1881. FIFTEENTH SEASON.

REGISTERED LUNG PROTECTOR TRADE MARK

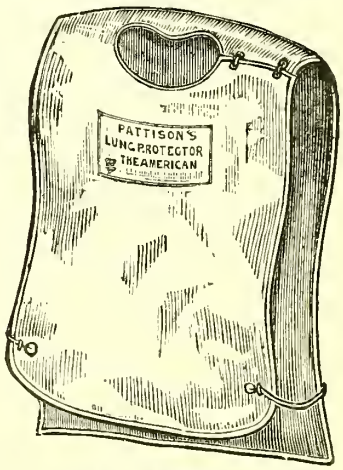
THE

LUNG PROTECTOR

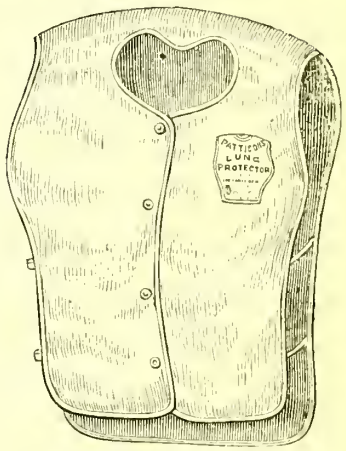
(REGISTERED).



THE LUNG PROTECTOR.
ORIGINAL PATTERN.



LUNG PROTECTOR.
THE AMERICAN.



LUNG PROTECTOR.
THE CANADIAN.

GEORGE PATTISON,

INVENTOR AND SOLE MANUFACTURER,

LONDON.

CHEMISTS' TRANSFERS.

32 LUDGATE HILL, LONDON (14 *Doors from St. Paul's Churchyard*).

MESSRS. ORRIDGE AND CO., CHEMISTS' TRANSFER AGENTS,

May be consulted at the above address on matters of SALE, PURCHASE, and VALUATION.

Immediate attention given to Foreign Commissions.

The Business conducted by Messrs. ORRIDGE and Co. has been known as a Transfer Agency since the year 1846, and is well known to all the leading firms in the Trade.

VENDORS have the advantage of obtaining an opinion on Value derived from extensive experience, and are in most cases enabled to avoid an infinity of trouble by making a selection from a list of applicants for purchase, with the view of submitting confidential particulars to those alone who are most likely to possess business qualifications and adequate means for investment.

PURCHASERS who desire early information regarding eligible opportunities for entering business will greatly facilitate their object by describing clearly the class of connection they wish to obtain. N.B.—No Charge to Purchasers.

Particulars of any of the following will be sent free on application—

1.—LONDON, W.—Returns £700 yearly; price £650.
2.—LONDON, W.—Returns £1,600 yearly; price about £1,600.
3.—LONDON, W.—Returns £1,000 yearly; price about £1,200.
4.—LONDON, N.—Returns £500 yearly; price £500.
5.—LONDON, N.—Returns £400 yearly; price about £300.
6.—KENT.—Returns £800 yearly; price about £800.
7.—BERKSHIRE.—Returns £500 yearly; price about £500.
8.—BIRMINGHAM.—Returns £400 yearly; price about £250.
9.—KENT.—Returns £800 yearly; price £775.
10.—BIRMINGHAM.—Returns £660 yearly; price about £600.
11.—BEDFORDSHIRE.—Returns £500 yearly; valuation.
12.—IPSWICH.—Returns £460 yearly; valuation.

PARTNERSHIPS.

13.—LIVERPOOL.—£1,000 investment required.
14.—LEEDS.—£600 investment required.

Particulars of Businesses for disposal in any special locality can be obtained on application, Free of Charge. Terms for Valuation on application.

ORRIDGE & CO., 32 Ludgate Hill, E.C.

MIDLAND COUNTIES TRANSFER AGENCY.

F. J. BRETT,

Trade Valuer and Auctioneer, Leicester.

All kinds of Chemists' Stock and Fixtures valued. Partnerships arranged. Particulars of different classes of Businesses forwarded to Buyers.

Through this Agency Businesses are disposed of quickly, and with as little publicity as possible.

To prevent disappointment, it is necessary for gentlemen desirous of securing Mr. Brett's services as a Valuer that appointments should be made as early as possible.

LONDON, S.E.—Neat little Retail, with good proprietary article; returns about £300; price £250 or cash offer.

LONDON, N.—Retail and Dispensing; returning £550; net rent, £41 10*s.*; lease; price £600.

LANCASHIRE.—In rising seaport town, mild climate; Dispensing and Light Retail, all at full prices; low rent; long lease; returns, which are yearly increasing, £520; price £100; lease and goodwill; stock and fixtures about £400, at valuation.

WEST OF ENGLAND.—Light Retail with mineral-water factory; returns £1,000; picturesque scenery; at valuation, about £900.

LIVERPOOL.—Branch Retail; corner of four busy streets; returns £400, and capable of much increase under personal attention; price £350, part of which can remain.

DRYSALTERY BUSINESS, in important Midland town, Wholesale; returns, at short credit, £2,000, and, with capital, can be increased indefinitely; vendor relinquishing to devote whole time to Proprietary articles; at valuation, about £600 to £700.

NORTH OF ENGLAND.—First-class Retail and Dispensing; all at full prices; fashionable seaside resort; shop fitted in most approved style in mahogany and plate glass; returns about £1,400; goodwill, £300; stock and fixtures at valuation about £1,000.

NOTTINGHAM (NEW).—Good medium class Light Retail Prescribing and Dispensing; rent £35, lease long; returns over £600; vendor obliged to relinquish on account of ill health; price £450.

MANCHESTER.—Dispensing, Prescribing, and Retail; returns £560; rent £40; appointment of annual value of £75; price £320.

NORTH MIDLANDS.—Old-established Light Retail with several valuable patents; shop, offices, &c., fitted in best style by London firm; returns exceed £2,000; net profit, £750.

YORKS.—Family Retail with Gilbey's Agency; returns at present £1,200; good double-fronted shop in large town; price £1,000.

F. J. BRETT, LEICESTER.

BUSINESSES WANTED.

WANTED TO RENT, House and Shop, suitable for Druggist and Grocer in small town or country village. Address, 65/37, Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

BUSINESSES FOR DISPOSAL.

FOR DISPOSAL.—A small Chemist's Business, in a good thoroughfare; price very low. H. S., Chemist, Alfreton Road, Nottingham.

SUNDERLAND.—Branch Business for Sale; modern fittings; light retail; returns over £460; price, £240. Apply by letter, T. R. S., under cover to Barron & Harveys, London.

NORTH SHORE, BLACKPOOL.—For Disposal, a small Business, capable of great improvement, especially if dentistry be added; stock optional; a lot of fixtures, &c., on sale. J. D. Fisher, 40 Market Street.

FOR DISPOSAL, a recently established branch business in a favourite and rapidly improving suburb; a good living already; rent, £36; price, £250. "Alpha," 64/36, Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

FOR DISPOSAL, in a densely populat "neighbourhood in Yorkshire, a good Prescribing and Mixed Business; returns, under management, £600; price £475, week's trial allowed; rent £20; corner shop, plate glass. Apply, O. B., Hodgkinson, Stead & Co., 26 Golden Lane, London.

DRUG, OIL AND DRYSALTERY.—To be Disposed of, old-established Business; present owners retiring; in present hands 14 years; returns £3,500; incoming £1,000; no goodwill; rent £30. Apply, O. B., Fissons Bros. & Co., Hull.

A BARGAIN.—To be Sold, a genuine old-established Business in the East-end of London, near the docks; an energetic and pushing man could work up a good business; no reasonable offer refused. Apply to C. Butler, Foulger, Butler & Bedells, 133 St. George Street, E.

PORTSMOUTH.—To Chemists and Druggists.—For Sale, an old-established Business, producing capital returns; stock and fixtures about £400; rent, £30; property may be purchased. For full particulars apply to Messrs. King & King, Auctioneers, Southsea, and 130 Queen Street, Portsea.

MONTGOMERYSHIRE.—For Disposal, genuine Dispensing, Prescribing, and select Retail Business; good position; shop double fronted, handsomely fitted, and well stocked; returns £800, capable of extension; profits on same over £400; no heavy trade; rent £35, on lease; price £700. Apply to 66/26, Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

IMMEDIATELY, a very old-established Drug and Grocery Business; no wines or spirits sold; has been conducted by present proprietor (who is now retiring) for many years; the profits are large, and the connection good; the premises, which are in good order and very commodious, to be sold or let; price for goodwill £100; stock and fixtures at a valuation. Apply, H. Gadd, 97 Fore Street, Exeter.

MESSRS. TENCH & TAYLOR,

CHEMISTS' AND MEDICAL TRANSFER AGENTS AND VALUERS,

9 WALBROOK, LONDON, E.C.,

HAVE THE FOLLOWING BUSINESSES FOR DISPOSAL:—

1. LONDON, N.—Good business; corner shop, handsomely fitted by Kidston; returns £940; good house; rent £70, on long lease; price £930.
2. LONDON, E.—Good Family Business, with a little Deutistry; returns £500, viz., drugs £450, and dentistry £50; rent £40; cash price £425; a bargain.
3. LONDON, N.W.—Good class business; shop well stocked and fitted; returns over £800; rent £65, on lease; price £950; no other chemist for some distance.
4. LONDON, N.—General Retail and Prescribing; returns £22 per montb; price £250; or offer.
5. LONDON, S.E.—Ready-money Light Retail and Prescribing; returns nearly £350; Post Office attached pays half tbe rent; price £250.
6. SOUTH COAST.—Mixed business; price £160, includiug some furniture; rent £20.
7. LIVERPOOL (suburb).—Newly-establisbed Homœopathic Light Retail and Dispensing; returns about £3 weekly; rent £35; good house; price £150, or valuation.
8. SOMERSET.—Good class Family Dispensing and Light Retail; only established a few months and already returns nearly £12 weekly; cash price £450.
9. LONDON (Surrey suburb).—Old-establisbed Dispensing and Light Retail; returns nearly £800 at full prices; cash price £700.
10. LONDON, N. (main thoroughfare).—Recently-opened Family Business; shop well fitted; returns about £6 weekly; price £200; good opening for an energetic young man.
11. SOUTH WALES.—Select Dispensing and Retail; returns about £600; under management; rent £80, on long lease; good house; price about £500.
12. LONDON, W.—Dispensing, Prescribing and Retail Business; returns for the last 3 years average over £1,700 per annum; price £1,600.
13. LONDON, E.—General Business; returning about £400 under management; price £300, or any reasonable offer. Death vacancy.
14. LONDON (Western suburb).—Principally a Prescribing Business; returns over £300 at full prices; profits nearly £200; cash price to an immediate buyer, £190.

Messrs. T. & T. bave **104 other Businesses** on their books for Disposal. Their **PRINTED REGISTER**, giving details, will be forwarded, post free, on application. No charge to purchasers.

Preliminary inquiries by Vendors answered, and a registration made of Businesses for Disposal free of charge.

N.B.—Appointments for Valuation should be made (if possible) at least seven days beforehand.

MR. TRIPPIER,

Medical Agent and Valuer,

79 ISLINGTON, LIVERPOOL.

FOR TRANSFER.

LIVERPOOL.—An old-established, select Family and Dispensing Business; commanding position in one of the best streets in the city; large house, handsomely fitted corner shop, private entrance to house; present proprietor giving up on account of ill-health.

ANOTHER.—An old-established Dispensing and Medical Business, situate in a very central position, on moderate rent.

ANOTHER.—Estd. 25 years; good thoroughfare; Prescribing and Light Retail; corner shop; easy rent; price £150.

MANCHESTER.—Suburbs, a Prescribing and Light Retail Business; ready money and profitable; small goodwill and valuation.

YORKS.—A very old-established Retail and Prescribing Business, returning £10 per week; expenses light; to be sold cheap.

ANOTHER; established 10 years; returning £400 per annum in Prescribing and General Retail; price £200.

MID-LANCASHIRE.—A Light Retail and Prescribing Business; established 12 years; good position; handsome plate glass front; sold at valuation, proprietor going abroad.

LANCASHIRE.—Large Manufacturing Town; a Dispensing and Prescribing Business; returns, £700; large house, at very low rent; proprietor retiring.

No Commission is charged to Purchasers.

All information on application. To facilitate matters, reference required on parties applying for the first time.

Lists of Stock for Appraisement receive immediate attention.

SCALE OF CHARGES.

Advertisements appearing under the following Headings are charged at the rate of 4s. 6d. for 7 lines and under, and 6d. extra for every additional line, payable in advance.

SALES BY AUCTION.
PARTNERSHIPS.
BUSINESSES WANTED. BUSINESSES FOR DISPOSAL.

BUSINESSES FOR DISPOSAL (Cont.).

A READY MONEY MEDICAL PRACTICE, together with the Business of a Chemist, to be Disposed of, in a large manufacturing town in Yorkshire; tbe purchaser may, if he prefers, take only the stock and fixtures at a valuation, and leave the vendor at liberty to commence practice again in the town; or he may also buy the goodwill of the practice, when the vendor will agree to be bound not to practice within any distance that may be considered reasonable. Apply, Mr. McGee, Surgeon and Apothecary, 255 Manchester Road, Bradford, Yorkshire.

IMPORTANT TO DRUGGISTS.—For Sale, on a trunk road leading out of Manchester, a compact business, established 40 years ago; magnificent mahogany glazed and labelled fittings, drawers, mirrors, counters, cornices, with elaborately carved capitals and window fittings, by Treble; glass show cases, bottles, jars, &c.; the stock is complete and has been well selected; if bought at once will be sold as a going concern for £200; cost nearly £700; if not sold before the 15th inst. it will then be catalogued and sold piecemeal by auction. To view and treat, apply to Mr. Hy. Paulden, Auctioneer, 1 Cooper Street, Manchester.

MANCHESTER.—For Immediate Disposal, a Retail Prescribing Business, situate in one of the busiest thoroughfares, commanding corner position; established 18 years; in present hands 11 years; average returns for last 5 years over £600; price, goodwill, £75; stock and fixtures at a valuation, or offer; good opening for dentistry; references to wholesale houses; satisfactory reasons for selling; the above is a bonâ fide business in every respect, and is well worthy the attention of anyone with about £400. Address, A. Z., care of Messrs. J. Woolley, Sons & Co., Wholesale Druggists, Manchester.

TO LET.

CHEMIST'S SHOP, in a fashionable West-end thoroughfare, to be Let on Lease; no premium. Agents, Messrs. Courath & Sons, 40 North Audley Street, W.

TO BE LET, a good House and Shop, in a good situation in York, where an extensive Chemists and Druggist's Business has been carried on for above 30 years; no fixtures or goodwill. Apply, Grange Terrace, Heworth York.

EMPLOYERS WANTING ASSISTANTS.

Advertisements are inserted under this Heading at a charge of 4s. 6d. for 7 lines and under; every additional line, 6d., payable in advance.

ASSISTANT WANTED, not under 25. Apply, E. Stovell, 70 Chapel Street, Islington, N.

VACANCY for Indoor Pupil. Highest professional references as to class of work; instruction would be gained from good hospital practice. Mr. Whitehouse, L.D.S.Ed., 50 Parliament Street, S.W.

DRUG and Chemical Trade.—A First-class Warehouseman. Apply by letter, stating salary required and name of last situation, to X.Y.Z., Messrs. Bowles & Cross, 3 Lambeth Hill, E.C.

DRUGGISTS' Sundry Trade.—Wanted, an experienced young Warehouseman; must be a good Salesman and generally useful; undeniable references, and state particulars. Apply T.W.S., 17 Guildford Street, Leeds.

APPRENTICE wanted.—R. Dunn, Dispensing Chemist, Bath, has a vacancy for a well-educated Youth; one who has passed the Preliminary Examination preferred.

ARTICLED PUPIL, or Apprentice, Wanted in October next; Surgeon's Retail; good opportunity for learning a Chemist's business and counter prescribing; home comforts; small premium; references to late pupil; terms by agreement. Dr. Braye, 3 The Mount, London Hospital, E.

APPRENTICE; South of France; comfortable home; no Sunday duty; excellent opportunity of acquiring a thorough knowledge of English and Continental Pharmacy and conversational French and German. Address, M. P. S., Davy, Yates & Routledge, 64 Park Street, S.E.

WANTED, in a large Manufacturing Pharmaceutical Laboratory, a competent man to manufacture Pharmacentical Preparations; must have had practical experience. Apply, by letter, to F. C. S., care of Messrs. Wertheimer, Lea & Co., Circus Place, London Wall, E.C.

A STEADY and competent Assistant, with a fair knowledge of Homœopathic Pharmacy, for West-end business. Apply, stating experience, age, salary, with carte, to be returned, married man not objected to, W. Butcher & Co., Homœopathic Chemists, Blackheath, S.E.

GENTLEMAN wanted to superintend the conduct of a large retail Chemist's. Would have six or eight assistants under him, and required to direct their labours. Only one who has had similar experience need apply; state age and salary. Junior also wanted. Manager, 135 Queen's Road, Brighton.

WANTED, by a Country Firm of Mineral Water Manufacturers, an active person of character and good business qualifications to take the duties of the managing partner, who is incapacitated by illness; he must be competent to take the office duties, and generally superintend the business, with the directing aid of the senior; a knowledge of chemistry, or one educated as a Chemist and Druggist, an acquisition; applicants must give references for general ability, and previous employment, also age. Address, R. O. V., care of Messrs. Ormerod & Allen, Solicitors, Manchester.

ASSISTANTS WANTING SITUATIONS.

Assistants Wanting Situations have the liberty of inserting advertisements of 12 *words for* 1*s.; every additional* 3, 4, *or* 6 *words,* 6*d., payable in advance.*

TO CHEMISTS.—Wanted, an Appointment by a Chemists' Assistant; out-door; £60 a year. "Chemicus," 113 Victoria Park Road.

TEMPORARY; qualified; aged 36; highest references; disengaged 20th. Keeley, Peuge Lane, Penge.

A REGISTERED CHEMIST requires an Appointment as Manager in the Retail, with a view to Purchase; good testimonials from past employers. W. D., 21 Mornington Road, Regent's Park, N.W.

J. GILL, Temporary Chemists' Assistant, Registered, 3 Russell Street, Liverpool. References: Messrs. Evans, Sons & Co., Messrs. Raimes & Co., Mr. John Thompson, Hanover Street, Liverpool.

AS MANAGER, in town or country; out-door preferred; unmarried; good references. Full particulars to R. J. A., 74 Windsor Road, Neath.

PERMANENTLY or otherwise, as Manager, Senior, Traveller, or Dispenser to a Surgeon; out-door; married; aged 33; good experience and references. "Alpha," 22 Mansel Street, Swansea.

AS JUNIOR, by 3rd October, where two or more are kept; London preferred; good experience and reference; aged 20½. Apply, Rev. L. Lewis, Rose Villa, Blaina, Mon.

AS JUNIOR, in good Dispensing Business in London or suburbs; with time for study; 5½ years' experience; total abstainer; good references. R. W., 19 Queen's Square, High Wycombe.

MR. A. K. TAYLOR, Temporary Manager, has removed to 23 Orpingley Road, Hornsey Road, N., where all letters, &c., are to be addressed. Terms as before; references forwarded.

GENTLEMAN, of active, energetic disposition, desires appointment as Traveller; well up in the trade; would accept good commission for town. "Z.," 2 Bath Villas, Portland Road, South Norwood.

WHOLESALE Drug and Sundries Trade.—Advertiser desires to represent an Edinburgh or English House in Glasgow; highest references. Address, 67/7, Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

A GENTLEMAN would accept one or two good Commissions, or act as Agent for good house. Address, "Chemicus," 178 St. George's Square, Sheffield.

WANTED, by a Young Man, a permanent situation as Assistant; 5 years' experience; passed preliminary examination, and has a good knowledge of the General Drug Business. W. J. S., 14 Newington St., Belfast.

ABROAD (preferred) or North of England.—Out-door Assistancy, or to manage a Branch; middle aged; unqualified; married; well up in general practice, and good accoucher; ten years with present employers; is a registered Chemist; understands retail; disengaged after September. Address, "Zeta," Regent Liberal Club, Trafford Road, Salford, Lancashire.

MISCELLANEOUS.

PURE WHITE HONEY, very finest quality for best table use, attractively put up in 2 lb. tins, price 18*s.* dozen, 4 dozen carriage paid; the quality cannot be surpassed; samples of Honeys in bulk in free tins and kegs on application; prices extremely low. Genuine Beeswax, best, in 1 lb. bricks. Genuine Crushed Linseed, containing *all* the oil, 18*s.* 6*d.* cwt., bag free. Wm. Kemp, High Street, Horncastle.

MANUFACTURE OF MERCURIALS.—A Firm of Pharmaceutical Chemists, contemplating the manufacture of Calomel and Corrosive Sublimate, in addition to their other products, is prepared to treat with an experienced man for information as to the most approved method of preparing the aforesaid articles, including drawings of apparatus, &c. Address, L 202, care of Charles Birchall, Advertising Agent, Liverpool.

NOTICE.

THE ACTIEN-GESELLSCHAFT FUR ANILINFABRIKATION OF BERLIN having been informed that statements are being made to their Customers to the effect that the sale and use of *Acid Rubine*, manufactured by the said Company, according to Dr. Jacobsen's Patent No. 2828, of 11th July, 1879, would constitute an infringement of other patents, they hereby assert that there is no foundation whatever in any such statements, the use and sale of their *Acid Rubine* being in no way an infringement of any other patent.

FINZELBERG'S

PEPSINE PORCI, P.B. OR P.G.

THE MOST RELIABLE & ALWAYS UNIFORM.

See "BRITISH MEDICAL JOURNAL," July 30th, 1881.

Apply to all Wholesale or Retail Chemists and Druggists.

COBDEN'S PILLS,

(QUININE & PHOSPHORUS.)

2/9 & 4/6

THE BEST NERVE TONIC.

SUSSEX DRUG Co. BRIGHTON.

JAMES C. CHUBB

CONTINUES TO SUPPLY

BEST SEIDLITZ POWDERS,

Loose, at 7*s.* per gross, and in boxes at 8*s.*, 9*s.*, and 10*s.* per doz.; Extrasceuted Violet Powder, prepared with wheaten starch, in 1*d.* boxes, 7*s.* per gross, 2*d.* boxes, 14*s.* per gross, ½-lb. packets, 2*s.* 6*d.* per doz.; Prepared Fuller's Earth, in 1*d.* boxes, 7*s.* per gross, 2*d.* boxes, 14*s.* per gross, and ½-lb. boxes, 2*s.* per doz., through the Wholesale Houses, or from 29 OLD STREET, LONDON, E.C.; and will forward list of articles packed by him on application.

BOXES AND PACKING CASES.

HORSLEY & FLOYD,

Box and Packing Case Makers and Circular Sawyers,

SPENCER SAW MILLS,

SEBRIGHT ST., HACKNEY ROAD, LONDON, E.

ESTIMATES FREE.

SMALL CORKS 1*d.* per Gross, larger sizes in proportion. These Corks are the solid portion of the Patent Hollow Corks cut by Machinery for the Aire and Calder Glass Bottle Company's Patent Stoppers.

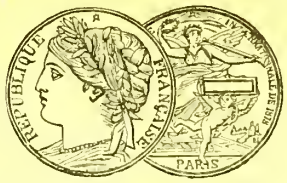
83 UPPER THAMES STREET.

"THE PERFECTION OF PILL MAKING."

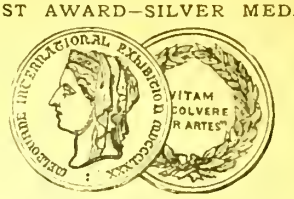
FIRST AWARD, HIGHEST AWARD—SILVER MEDAL, FIRST AWARD—SILVER MEDAL,



Sydney, New South Wales, 1879.



Paris Exposition, 1878.



Melbourne, 1881.

W. H. Schieffelin & Co.'s

SOLUBLE COATED PILLS AND GRANULES,

UNEQUALLED FOR

Purity in Composition, Solubility in Coating,
Uniformity in Size, Perfection in Form and Finish.

The unparalleled success of our Soluble Coated Pills and Granules in America has induced us to offer them now for the first time to the Physicians and Pharmacists of Great Britain, who are respectfully invited to examine and try them, and to compare them with any other Coated Pills on the market. They are acknowledged to be among the finest specimens of elegant Pharmacy, and have successfully competed with all other kinds of Coated Pills.

We desire to call the attention of Physicians and others to the following points:

1. The best materials are used in their manufacture.
2. The Pills are Coated while soft.
3. The Coating is quickly and perfectly soluble, and there is no sub-coating of any kind.
4. The Coating is so thin that the Pills are not perceptibly increased in size, and yet entirely protects them, and effectually covers any nauseous taste.
5. The Coating is so transparent as to clearly reveal the colour of the mass, and its solubility is not impaired by age.
6. The mass is worked to the highest possible degree of uniform intermixture, and subdivided with scrupulous exactness.
7. Vegetable or organic matters are not charred, nor are volatile principles lost by the use of heat at any time throughout the process of manufacture.
8. The excipients are specially adapted to the permanent solubility of the mass and its efficient therapeutic action.

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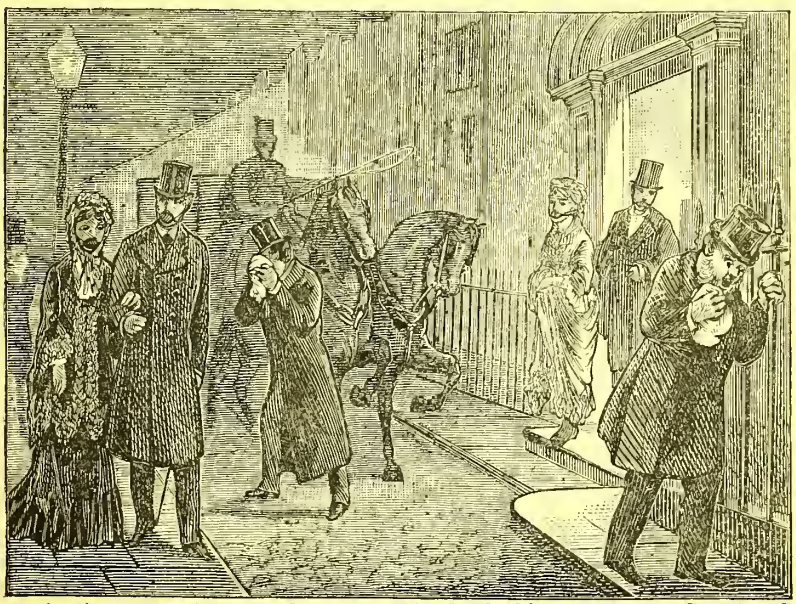
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SAVAR'S COAL TAR SOAP.—Prepared from an Original Formula; a most elegant and agreeable Toilet Disiufectant. In Tablets, 4*d.* and 6*d.* each; 2*s.* 9*d.* and 3*s.* 9*d.* per dozen.

SAVAR'S COLD CREAM.—Delicately Perfumed with Otto of Roses. Pots, 6*d.* and 1*s.* each; 3*s.* 9*d.* and 7*s.* per dozen.

SAVAR'S CORN AND BUNION PLASTERS.
Best White Felt. 6*d.* Boxes, 2*s.* 3*d.*, 2*s.* 10*d.*, 2*s.* 8*d.*, and 3*s.* 6*d.* per dozen Boxes; and in bulk, 1*s.* 8*d.* to 5*s.* 6*d.* per gross.

SAVAR'S FEEDING BOTTLES.

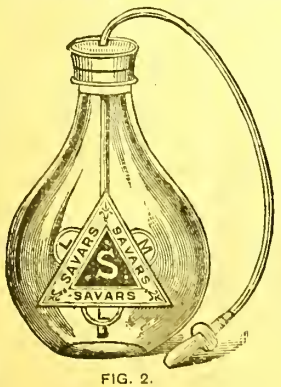


FIG. 2.

These Feeding Bottles are fitted with the best quality of Materials, and are acknowledged by all to be superior to any others offered at the same prices.

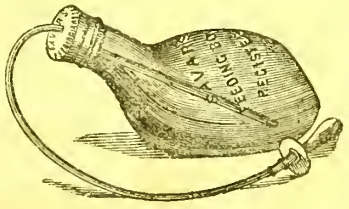


FIG. 1.

May be had either as FIG. 1 or FIG. 2, fitted with White Indiarubber Tubing and Teats, or with Native Black Indiarubber Tubing and Teats.

Retail, 6*d.*, 1*s.*, and 2*s.* each; 3*s.* 6*d.*, 4*s.*, 7*s.* 6*d.*, 8*s.* 6*d.*, and 17*s.* per dozen.

SAVAR'S FLORAL POMADES.—Handsomely labelled. In 1*s.* and 6*d.* Bottles; 8*s.* and 4*s.* per dozen

SAVAR'S FLY PAPERS.—For the Destruction of all kinds of Insects. The Cheapest and most Effectual made. 15*s.* per 1,000.

SAVAR'S FOSSILINE CORN PLASTERS.—Easily applied. Superior to any others. Boxes, 1*s.* each; 8*s.* per dozen.

SAVAR'S FOSSILINE PLASTER.—Highly recommended by the Medical Faculty as superior to other Plasters. Boxes, 9*d.* each; 6*s.* per dozen.

SAVAR'S FOSSILINE POMADE.—Prevents the Hair Falling Off. The most Economical Pomade. Bottles, 1*s.* and 6*d.* each; 8*s.* and 4*s.* per dozen.

SAVAR'S FOSSILINE TOILET SOAP.—Highly Emollient. 6*d.* Tablets, 1*s.* 6*d.* and 5*s.* Boxes; 4*s.*, 13*s.*, and 48*s.* per dozen.

SAVAR'S "GOOD SAMARITAN" PATENT POROUS PLASTERS.
Adhere readily, and are manufactured from the best materials—*free* from Indiarubber. BELLADONNA, CAPSICUM, or STRENGTHENING, 4*d.* each; Belladonna and Capsicum, 27*s.*, Strengthening, 24*s.* per gross.

SAVAR'S "GOOD SAMARITAN" PROTECTORS (NEW SHAPE).
Effectually Cover Chest and Back. 2*s.* 6*d.* to 7*s.* 6*d.* each; 21*s.* to 69*s.* per dozen.

SAVAR'S PERFUMERY.—The most lasting and agreeable. 6*d.* and 1*s.* Bottles; 4*s.*, 8*s.*, and 8*s.* 6*d.* per dozen.

SAVAR'S POROUS MARGINAL PLASTERS, ON LEATHER.
BALSAMIC, BELLADONNA, CAPSICUM, ROBORANS, &c., all shapes, far superior to any other kind of Marginal Plaster.

SAVAR'S TOILET SOAPS.—Brown Windsor, Castille, Curd, Glycerine, Honey, Oatmeal, Transparent Glycerine, &c., delicately Perfumed. In 2*d.*, 3*d.*, 4*d.*, and 6*d.* Tablets, 1*s.* Bars, and 1*s.* Boxes.

SAVAR'S VIOLET POWDER.—Deliciously Perfumed Starch Powder only. ¼-lb. and ½-lb. Packets, 1*s.* per lb.

The Trade are solicited to state distinctly when ordering that **SAVAR'S** *Articles are required, and are cautioned that each Article is protected with the Trade Mark as above.*

Less Ten per cent. Discount, Three Months' Current Accounts. Special Discount to Large Buyers.

A COMPLETE PRICE CURRENT OF DRUGGISTS' SUNDRIES, PROPRIETARY ARTICLES, PATENT MEDICINES, &c., SUPPLIED ON APPLICATION.

SOLE PROPRIETORS:

EVANS, SONS & CO., 56 HANOVER STREET, LIVERPOOL.

H. SUGDEN EVANS & CO., Montreal, Canada, and Rouse's Point, New York. EVANS, LESCHER & WEBB, London.

NOTE.—Please to turn this round and read it.

TRADE MARK.

G. F. SNOOK & SON,

TRADE MARK.

WHOLESALE & EXPORT MANUFACTURERS.

GENUINE Brown Arnicated Felt Corn and Bunion Plasters.

SUPERIOR White Spread Felt Corn and Bunion Plasters.

FELT CHEST PROTECTORS.

FELT CHEST AND LUNG PROTECTORS.

Chamois and Flannel Chest and Chest and Lung Protectors.

Turkish Toilet and Bath Gloves in all New Patterns.

Bath Straps and Sponge Pads.

Waterproof Sponge Bags, Bathing Caps, Nursing Aprons, &c.

Before you Order, send for Price List. Please Note the Address.

376 CITY ROAD, ISLINGTON, LONDON, N.

MOUNSEY'S

ORIGINAL

PRESTON

SMELLING SALTS.

PREPARED ONLY BY HIS SUCCESSOR,

WILLIAM WILLAN,

CHEMIST,

AT THE OLD ESTABLISHMENT,

3 FRIARGATE, PRESTON.

Liberal Terms to Shippers and Large Buyers. Usual Trade Discount.

The Trade should see that the name of "Mounsey" is on the bottles, and "W. Willan, late Mounsey, Chemist, Preston," on the seal which is upon every cork.

3

CONCENTRATED
(various)
CHOICE ESSENCES
(In Bulk).

No. 30 .. .. 12s. for 20 fluid ounces.
No. 24 .. .. 9s. 6d. „ „
No. 18 .. .. 8s. „ „
AND IN doz.
Corked Bottles..3s. 6d.. 4s.. 7s., 8s., 12s.
Sprinklers .. .. 4s., 7s. 6d., 8s., 12s.
Stop'd Bottles .. 9s., 12s., 14s., 18s. and upwards.

POMADES, &c.

doz.
Assorted (glass stop'd) .. 8s. and 12s.
Assorted (tall or squat), boxwood tops .. .. .. 4s. and 8s.
Nursery (large) .. .. .. 4s. and 9s.
Lime Juice and Glycerine..4s. & 7s. 6d.
Glycerine and Lime Cream 4s. and 8s.
Brilliantine .. .. .. 8s. and 12s. (separable and unseparable.)
Brilliantine (White Rose), Stoppered Bottles .. .. 8s. and 12s.
Cherry Tooth Paste .. .. 4s. and 8s.
Areca Nut „ .. .. 4s. and 8s.

ESTABLISHED 1777.

PERFUMERY

Of every known kind.

T. F. BRISTOW & CO.
MANUFACTURERS.

TOILET SOAPS

Of every description.

Special Quotations. Price List on Application.

5 BISHOPSGATE AVENUE, LONDON, E.C.

SPECIAL SOAPS
(In Boxes).

Cold Cream Soap, doz.
3 tablets in box .. .. 12s. and 20s.
Coal Tar Soap, ditto .. .. 8s. and 12s.
Carbolic, ditto .. .. .. 8s. and 12s.
Glycerine & Oatmeal ditto 8s. and 12s.
„ Transparent, ditto 8s. and 12s.
„ and Carbolic, ditto 8s. and 12s.
Lavender (Sweet), ditto .. 8s. and 12s.
Baby Soap, 4 Tablets in Box .. .. 9s.
„ 12 ditto .. .. 27s.
Family Economic, 4 ditto .. .. 8s.
„ 12 ditto .. .. 24s.
Thrmol, 3 tablets in box .. 8s. and 12s.

MEDICATED SOAPS
(In Wrappers).

Carpet and Cloth Soap, 3s. 6d. and 7s. dz.
Dog Soap .. .. .. 3s 6d. and 7s. „
Coal Tar (Family) .. 18s. and 27s. gr.
Carbolic „ .. 18s. and 27s. „
Camphorated Winter 27s. and 39s. „
Fullers' Earth.. .. .. .. 3s. 6d. dz.
Jewellers .. .. 4s. „
Petroleum .. .. 4s. „
Pumice Stone .. .. 3s. 9d. „
Juniper Tar .. .. 4s. „
Sulphur .. .. 4s. and 8s. „
Zinc .. .. 4s. and 8s. „

ANTAKOS,

THE MARVELLOUS CORN CURE.

NOTICE TO THE TRADE.

This Article is now being extensively advertised. All Orders and Communications to be addressed to

THE ANTAKOS COMPY.,

83 FINSBURY PAVEMENT, E.C.

PURE SPIRITS OF WINE

FOR

TINCTURES, ESSENCES, PERFUMES, &c.,

OXFORD ROAD DISTILLERY, MANCHESTER.

MESSRS. SMITH & GIBB

Beg to call the attention of CHEMISTS and DRUGGISTS to the undermentioned Prices of Pure Spirits of Wine :—

Strength per cent.	Specific Gravity.	Price per gallon.
63 over proof ..	0·8238 ..	20/6
60 „ ..	0·8298 ..	20/0
55 „ ..	0·8366 ..	19/6
50 „ ..	0 8482 ..	19/0

Terms—Cash on Delivery. Jars to be returned or paid for.

For Exportation, Cask included, 4/0, 60 O.P., F.O.B.

Orders from the country must be accompanied with a remittance, including the price of the Jars, which are charged as follows :—2 galls. 3/- ; 3 galls. 3/6 ; 4 galls. 4/- ; 5 galls. 5/6 ; 6 galls. 6/-. When the empties are returned the money will be repaid.

HYDROGEN PEROXIDE.

For Bleaching Hair, Feathers, Wax, Ivory, &c., &c.

12 VOLUMES.

Price 2/6 per Pound ; 11/6 per Winchester Quart ; or 20/ per Gallon.

BOTTLES EXTRA. NET CASH WITH ORDER.

J. BRODIE, Manufacturer,
41 MUSEUM STREET, LONDON, W.C.

GOLDEN HAIR WASH

Produces, by two or three applications, the beautiful Golden Colour so much admired.

WARRANTED PERFECTLY HARMLESS.

1/0 size, 6/0 per dozen.
2/6 „ 15/0 „
3/6 „ 21/0 „
5/0 „ 30/0 „

Put up in an attractive and saleable form.

J. BRODIE, Manufacturer,
41 MUSEUM STREET, LONDON, W.C.

BURROUGH'S SPIRITUS RECTIFICATUS, P.B.

SPIRITS OF WINE CHEMICALLY PURE.

The Best English Grain Spirit, Free from Fusel Oil.

56 over proof, 20s. per gallon ; 60 over proof, 20s. 6d. per gallon ; less 5d. per gallon for five gallons. Lower quotations for quantities. Cash on delivery or with order. Country Orders must contain remittance or reference to London House.

CALE STREET DISTILLERY, LONDON, S.W.

Also Duty Free for Exportation. Best Methylated Spirits at Lowest Prices.

FRENCH PATENT SCREW GLASS POTS & BOTTLES,

WITH METALLIC NICKLED CAPSULES.



The above new method will show advantageously Jams, Jellies, Honey, Dragés, Cachous, Pills, Lozenges, &c., is specially adapted for Export, and excels all others for neatness and elegance. Made in various new Designs—Pots, "Kalis" tube-shaped Bottles, Bocals, &c. Spécialité for Bottles for all kinds of Confectionery, Essences Manufacturers, and Sundries. (Wholesale only.)

THE LARGEST ASSORTMENT IN ENGLAND.

G. V. DE LUCA, French Flint Glass Manufacturer, 21 Jewin Crescent, LONDON, E.C.

TO BE HAD OF ALL DRUGGISTS' SUNDRIESMEN.

SPONGES!

R. CRESSWELL & CO.,

SPONGE MERCHANTS & IMPORTERS,

32 Red Lion Square, London;

AND AT PIRÆUS AND SMYRNA.

ESTABLISHED 1850.

The Finest Qualities and Shapes obtainable are quoted below, and the Prices are, without exception, the LOWEST IN THE MARKET.

PRICES CURRENT OF SANDED & SANDLESS SPONGES,

IN ORIGINAL CASES AS IMPORTED.

HONEY-COMB SPONGES.

No.	Qlty.		Pieces in case about.	Price case. £	s.	d.
1	1st	Finest selected shapes, assorted sizes	130	12	0	0
2	1st	Do. do. ...	75	7	0	0
3	1st	Do. do. ...	45	4	0	0
4	1st	Small selected shapes	275	7	0	0
5	1st	Superior do. large Bath sizes	25	7	0	0
6	2nd	Do. quality shapes, assorted sizes...	125	8	0	0
7	2nd	Do. do. do.	75	4	4	0
8	2nd	Good quality shapes, small ...	275	3	10	0
9	2nd	Do. do. large Bath sizes	25	5	0	0
10	3rd	Do. do. assorted sizes ...	145	5	5	0
11	3rd	Do. do. do. ...	90	3	10	0
12	3rd	Do. do. large Bath sizes	25	3	0	0
13	4th	For Stable use, &c.	125	1	5	0

FINE TURKEY SPONGES.

14	1st	Finest selected Cups, assorted sizes	110	18	0	0
15	1st	Do. do. do.	55	10	0	0
16	1st	Do. do. Bath sizes	35	12	0	0

Fine Turkey Sponges—*continued.*

No.	Qlty.		Pieces in case about	Price case. £	s.	d.
17	2nd	Superior Cups, assorted sizes ...	110	12	0	0
18	2nd	Do. do. ...	55	7	0	0
19	2nd	Do. Bath sizes ...	35	9	0	0
20	3rd	Fine Cups, assorted sizes ...	110	9	0	0
21	3rd	Do. do. ...	65	5	5	0
22	3rd	Do. Bath sizes	35	7	0	0
23	1st	Turkey Solids, assorted sizes ...	115	7	0	0
24	2nd	Do. do. ...	110	5	10	0
25	1st	Flat Saddle, assorted sizes ...	55	9	10	0
26	1st	Do. do. ...	35	6	0	0
27	2nd	Do. do. ...	55	6	5	0
28	2nd	Do. do. ...	35	4	0	0

BROWN TURKEY SPONGES.

29	1st	Finest selected, assorted sizes ...	140	4	10	0
30	1st	Do. do. ...	75	2	15	0
31	2nd	Superior quality, do. ...	140	3	3	0
32	2nd	Do. do. ...	75	2	0	0
33	3rd	Slate quality, do. ...	350	1	1	0

The above may be had Sanded or Sandless, as required.

ALL COMMUNICATIONS TO BE ADDRESSED TO LONDON OFFICES.

PAINTS. VARNISHES. WOOD STAINS.



VIENNA.

THOMAS S. JACKSON



LONDON.

MANUFACTURER OF

READY-MIXED PAINTS,

Packed in 1, 2, 4, 7, and 14-lb. Tins.

25 USEFUL and SALEABLE TINTS,

Superior Colours, well packed, and guaranteed to Dry Well.

HANDSOME SHOW BOARDS

(Framed and Glazed), with Specimens of the Colours, supplied.

PRICES AND SAMPLE CARD ON APPLICATION.

OIL VARNISHES

(Every description).

JAPANS
BRUNSWICK AND BERLIN BLACKS.
TEREBENE.
FRENCH POLISH
WHITE AND BROWN HARD SPIRIT VARNISHES.
KNOTTING. LACQUERS.

DRYERS and GROUND COLOURS } of the finest quality.

DRY COLOURS, all Prices and Shades.

IMPORTERS OF OCHRE, ULTRAMARINE, &c.

WOOD STAINS,

"SPECIAL."

MAHOGANY, OAK, WALNUT, SATINWOOD, ROSEWOOD, EBONY.

Draught, or packed in 6*d.* bottles (½-pint). Also in powder.

SHOW BOARDS,

With specimens of the Stained Woods, supplied.

The demand for these Stains is steadily increasing. They possess great richness and truth of colour, and

ARE OFFERED AT A REASONABLE PRICE.

NOTICE.—*All communications should be addressed to the Office—*

LAYTON'S BUILDINGS, 199 HIGH STREET, SOUTHWARK, LONDON, S.E.

☞ There is no connection with any firm of a similar name.

ESTABLISHED 1853.

H. BESSEMER'S GOLD PAINT.

RETAIL PRICES:

Small Bottles of Gold with Liquid	1s. 6d.	Large Bottles of Gold	3s. 6d.
Medium ,, ,, ,, & Bowl & Brush	2s. 6d.	,, ,, Liquid	0s. 6d.

To be obtained of all Chemists, Artists' Colourmen, and Druggists' Sundriesmen.

NEW 1s. 6d. and 2s. 6d. PACKETS.

CONTENTS:—1 Bottle Gold Powder, 1 Bottle Mixing Liquid, 1 Mixing Bowl, 1 Brush, in Cardboard Box.

Where the Bowl and Brush are not required, the usual 1*s.* 6*d.* Packet should be purchased, as it contains a larger quantity of both Gold and Liquid.

A Copper and Silver Paint, at the same prices, and yielding equally good results, can be obtained.

NOTICE.—The Gold Paint is so easy of application, economical in use, and excellent in appearance, that it is extensively employed in the Ornamental Gilding of Decorative Mouldings, Carvings, and all Fancy Ornaments made either of Metal, Wood, Porcelain, or Plaster, and the effects that can be produced, even by unskilled hands, makes it useful to all engaged in fancy or home embellishment.

Sole Proprietor and Manufacturer, } **RICHARD J. ALLEN,** Mansfield Place, Kentish Town, London, N.W.

If Translations are supplied, Circulars, Cards, or Labels will be printed in any language necessary for its sale.

BRECKNELL'S SKIN SOAP

Is still the best for producing a clear and healthy skin.

BRECKNELL'S SADDLE SOAP,

Used in the Royal Stables, by the Army, and in Hunting Establishments.

The best thing made for cleaning Saddles.

MAY BE HAD OF ANY SADDLER.

BRECKNELL TURNER & SONS,
HAYMARKET, LONDON, ENGLAND.

The Camphorated Furniture Polish

(Secured by Royal Letters Patent),

For Polishing Furniture, Papier Maché, Marble Articles, &c., with half the usual labour; removes Moths, &c., from contents of drawers and wardrobes, and is free from the unpleasant odour of turpentine.

In Bottles, 8d., 1/2, & 2/ each.

TERMS ON APPLICATION TO THE PATENTEES,

CARRUTHERS & ALLAN,
60 Robertson St., Glasgow.

GENUINE EMERY, EMERY CLOTH, AND BLACK LEAD.

JOHN OAKEY & SONS,

MANUFACTURERS OF

Glass Paper, Emery and Glass Cloth; Emery, Black Lead, Pumice, Putty Powder, Crocus, Urn Powder, Tripoli, Rouge, Plate Powder, Steel Polish, Furniture Polish; Knife Boards, Brunswick and Berlin Black, &c.

OAKEY'S WELLINGTON KNIFE POLISH,

Prepared expressly for Oakey's Patent India-Rubber Knife Boards, Buff Leather Boards, and all the Patent Knife Cleaning Machines. Sold in Packets 3*d.* each; and Tins, with perforated Tops to prevent waste, 6*d.*, 1*s.*, 2*s.* 6*d.*, and 4*s.* each.

OAKEY'S NON-MERCURIAL SILVERSMITH'S SOAP,

For Cleaning and Polishing Silver, Plate Glass, Marble, &c. Tablets, 6*d* each.

OAKEY'S POLISHING PASTE,

For Cleaning Brass, Copper, Tin, Pewter, &c., &c. Boxes, 1*d.*; Tins, 2*d.*; Pots, 6*d.* and 1*s.* each.

WELLINGTON BLOCK BLACK LEAD,

In 1*d*, 2*d.*, and 4*d.* Blocks, and 1*s.* Boxes.

WELLINGTON EMERY & BLACK LEAD MILLS, Westminster Bridge Road, London, S.E.

Highest Award and Prize Medal, Philadelphia Exhibition, 1876.

DIPLOMA OF MERIT, VIENNA EXHIBITION, 1873.

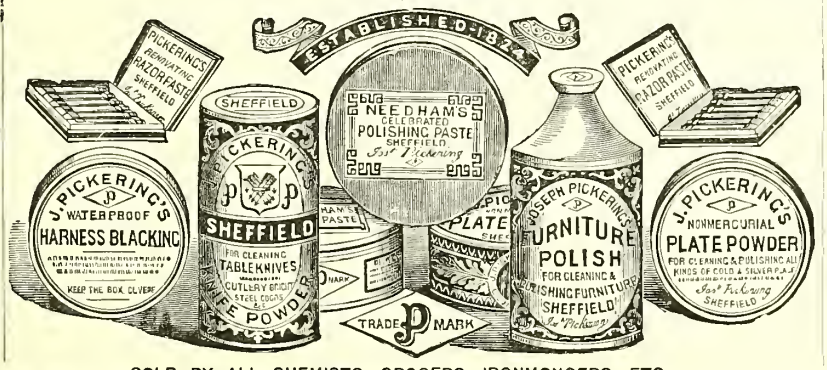
Joseph Pickering & Sons (Late J. Needham), Albyn Works, Sheffield,

MANUFACTURERS OF

Needham's Polishing Paste,
For Cleaning Brass Copper, and Britan Metal Goods, &c.

Pickerings' Razor Paste,
For Sharpening Razors, &c.

Waterproof Harness Blacking,
For Black Leather Harness.



Sheffield Knife Powder,
For Table Knives, Fire Irons, &c.

Plate Powder,
For Electro-plate Articles, &c.

Furniture Polish,
For cleaning French Polished Furniture, &c.

Brunswick Black,
For all kinds of Iron Work.

SOLD BY ALL CHEMISTS, GROCERS, IRONMONGERS, ETC.

"LA BRILLANTINE"

(REGISTERED)

Is used by the Life, Horse, and Dragoon Guards, the Fire Brigades, &c.

METALLIC POWDER

For Cleaning and Polishing Metals and Glass (especially Brass).

PROPRIETORS—

J. F. BAUMGARTNER & CO.,

22 NEWMAN STREET, OXFORD STREET,

LONDON, W.,

And all Wholesale Houses. *Beware of Imitations.*

MARBLE RENOVATOR,

For Cleansing and Polishing Marble. Retail at 8*d.*, 1*s.* 2*d.*, and 2*s.*

Surprising in its Effects.

"ANTI-RUST,"

For Preserving all kinds of Polished Steel, Iron, and Gun Metal from RUST. Used with Success by some of the largest Sheffield Steel Manufacturers. Retail at 1*s.* Wholesale from—

CUBLEY & PRESTON, 4 High Street, SHEFFIELD.

And all Wholesale Houses.

W. S. YATES,

Chemists' Shop Fitter, Shop Front Builder, and Glass Show Case Maker.

PLANS AND ESTIMATES SUPPLIED FOR WORK IN ANY PART OF THE KINGDOM.

9 CAMDEN STREET, LIVERPOOL.

INDEX TO ADVERTISEMENTS,

See Pages 39 & 40.

Goddard's Plate Powder

For nearly Half a Century this Powder has sustained an unrivalled reputation throughout the United Kingdom and the Colonies as the BEST and SAFEST article for Cleaning Silver and Electroplate.

Sold in Boxes, 1*s.*, 2*s.* 6*d.*, and 4*s.* 6*d.* each. Also

GODDARD'S FURNITURE CREAM,

Sold by all Patent Medicine Houses and Wholesale Druggists,

Manufactured by J. GODDARD, Station St., Leicester.

FOR CLEANING PLATE.

BRADLEY & BOURDAS'S

ALBATUM or WHITE ROUGE,

For Cleaning Gold, Silver, and Plated Goods.

Since its introduction as a substitute for the ordinary Rouge, a quarter of a century ago, the sale has amazingly increased both at home and abroad. A trial is only needed to prove its superiority over other plate powders in use. Sold in Boxes at 1*s.* and 2*s.*; Tins, 6*s.* 6 Pont Street, Belgrave Square, and 48 Belgrave Road, London, S.W.

BRYANT & MAY,

FAIRFIELD WORKS, BOW, LONDON, E.

AWARDED 9 PRIZE MEDALS.

BRYANT & MAY'S Patent Special Safety Matches in Dozen Packets and 1*d.* Boxes.

BRYANT & MAY'S Patent Family Match Safe, containing Three Dozen of their Patent Special Safety Matches with Three Decorated Cases, ornamental, damp proof, and durable. Invaluable for family use.

BRYANT & MAY'S Glove Boxes of Ornamental Metal; sold empty, or filled with one dozen boxes of their Patent Special Safety Matches, or one pound of their extra quality taper.

BRYANT & MAY'S Patent Safety Match Holders and Match Box Holders for hanging against the wall.

BRYANT & MAY'S Match and Date Card Holder combined, fitted complete; for hanging against the wall.

BRYANT & MAY'S Glass and Terra Cotta Stands for Patent Safety Matches.

BRYANT & MAY'S Novel Ornamental Post Office Pillar Box, filled with Wax Vestas and containing full postal instructions.

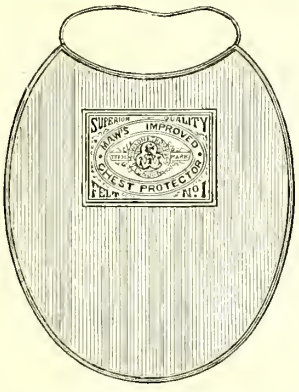
BRYANT & MAY'S 6d. and 1s. Wax Vestas in Ornamental Flat Metal Boxes.

MANUFACTURERS OF ALL KINDS OF MATCHES, VESTAS, AND CIGAR LIGHTS.

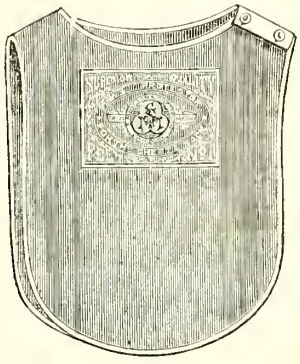
FELT CHEST PROTECTORS.

SINGLE.

No.	Per Doz. s.	d.
1 ...	7	6
2 ...	9	6
3 ...	11	6
4 ...	14	0
5 ...	20	0



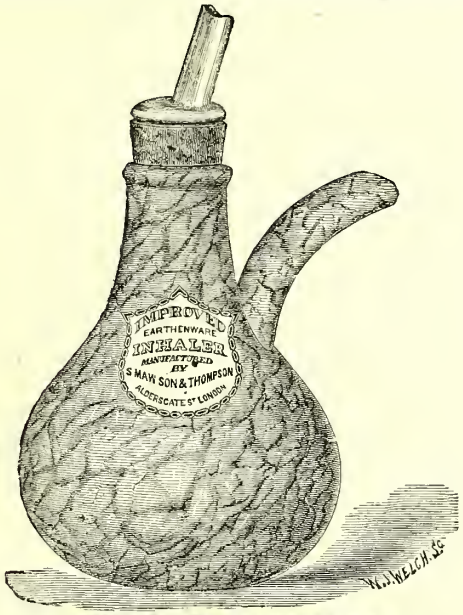
DOUBLE.



No.	Per Doz. s.	d.
1 ...	17	0
2 ...	22	6
3 ...	28	0
4 ...	34	0
5 ...	45	0

All Scarlet, or assorted Scarlet and White.

S. MAW, SON & THOMPSON, LONDON.



MAW'S
IMPROVED
EARTHENWARE INHALER,
36s. per dozen.
With Elastic Tube and extra Glass Mouthpiece, 54s. per dozen.



MAW'S
DOUBLED-VALVED
EARTHENWARE INHALER,
60s. per dozen.
Ditto, with Elastic Tube, 78s. per dozen.

S. MAW, SON & THOMPSON, LONDON.

MELBOURNE EXHIBITION, 1881, FIRST AWARD.

LONDON. 1862. VIENNA, 1873. PHILADELPHIA, 1876. PARIS, 1878. *Silver Medal.* SYDNEY, 1879. SYDNEY, 1879. *Special Award for Sponges*

G. B. KENT & SONS, LONDON.

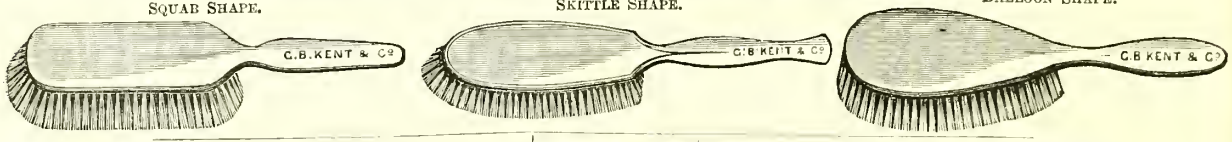
FACTORIES— *11 Great Marlborough Street, W.*

BRUSHES

KENT'S HAIR BRUSHES

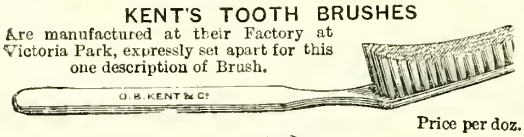
WAREHOUSES— *Bonner Road, Victoria Park, E.*

SQUAB SHAPE. SKITTLE SHAPE. BALLOON SHAPE.



KENT'S TOOTH BRUSHES

Are manufactured at their Factory at Victoria Park, expressly set apart for this one description of Brush.



Price per doz.

First Quality	*C.B.Kent&Co*	*London*	6/6
Second Quality	*Imperial*	*Quality*	5/0
Third Quality	WARRANTED	LONDON	4/0
Fourth Quality	WARRANTED	SECURE	3/6
Fifth Quality	WARRANTED	SOUND	3/0

Badger Hair Tooth Brushes .. .. 4/6 6/0 8/0 11/0 per doz.
Children's „ .. .. 3/0 3/6 4/0 „
Tooth Brush Guards .. .. Metal, 3/3 Porcelain, 4/6 „
Japanned Wet Brush Holders .. 3/0 5/6 6/0 13/0 „



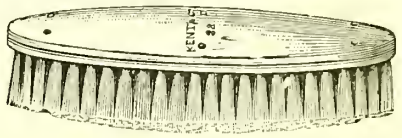
THE NOVELTY TOOTH BRUSH. TRIPLE CEMENTED AND EXTRA SECURE. Depôt for America: 91 Fulton Street, NEW YORK

KENT'S NAIL BRUSHES.



Bent Back	4/0	7/0	8/6	10/6	12/0	14/6
Round End	4/0	7/0	8/6	11/0	13/0	15/0
Roached Grooved ..	19/0	24/0	28/0	32/0	36/0	40/0

OVAL



PATTERN.

No.	22	23	24
8/6	13/0	17/6	22/0

Handled Nail Brushes .. 4/0 4/6 7/0 8/0 10/6 12/0 16/0 per doz.
Wood „ Trepanned 12/0 16/0 18/0 21/0 24/0 27/0 „
„ „ Fibre 21/0 27/0 30/0 36/0 42/0 48/0 54/0 per grs.

KENT'S CLOTH BRUSHES in WOOD or IVORY.
KENT'S HAT BRUSHES in WOOD or IVORY.
KENT'S FLESH BRUSHES, Handled or Webbed.
KENT'S SHAVING BRUSHES in Badger Hair, &c., &c.

KENT'S FITTED LEATHER CASES of various descriptions.
KENT'S HAND MIRRORS in Wood and Ivory.
KENT'S COMBS in Ivory, Shell, Indiarubber, &c.
KENT'S "NOVELTY" TOOTH BRUSH GUARD.
(Telescope pattern, silver-plated)

G. B. KENT & SONS' Illustrated Price List will be forwarded by post on application.

TO AGRICULTURAL CHEMISTS.

"PIX" COMPO

IS THE

BEST DRESSING FOR ALL KINDS OF SEEDS

(WHEAT, OATS, AND BARLEY),

For the Prevention of the Ravages of Birds, Insects, and Vermin.

It Drills easily without the use of Lime, and is perfectly harmless to the germination of the Seed.

It saves the expense of Crow Keepers and Bird Boys, and is pronounced by hundreds of Farmers to be of the greatest use to them.

SOLE AGENTS WANTED IN TOWNS WHERE NONE ARE ALREADY APPOINTED.

TERMS ON APPLICATION TO

WILLIAMS & PROCTOR, MANUFACTURING CHEMISTS, CHEPSTOW, MON.

By Appointment to H.R.H. **BIGG'S** the late Prince Consort.

SHEEP AND LAMB DIPPING COMPOSITION,

For Destruction of Ticks, Lice, &c., and Prevention of Fly.

HAS NOW BEEN USED WITH GREATEST SUCCESS FOR NEARLY HALF A CENTURY.

PAMPHLETS ON APPLICATION.

LEICESTER HOUSE, GREAT DOVER ST., BOROUGH, LONDON.

In any Town where no Agent exists Chemists are requested to apply.

WHOLESALE AGENTS FOR CANADA AND UNITED STATES—

Sugden Evans & Co., Montreal, Canada, and Rouse's Point, New York.

TRADE MARK  THE GOLDEN FLEECE.

THE "LONDON" TOBACCO JUICE.

BY SPECIAL PERMISSION OF HER MAJESTY'S CUSTOMS FREE OF DUTY.

No. 1 contains 42 ozs. to the Gallon. No. 2 contains 24 ozs. to the Gallon.

We confidently recommend No. 1 as being the best and cheapest article in the Market. Also

TOBACCO POWDER (DUTY FREE).

WHOLESALE FROM THE MANUFACTURERS,

CORRY, SOPER, FOWLER & CO. (Lim.),

18 FINSBURY STREET, E.C., and SHAD THAMES, LONDON, S.E.

ESTABLISHED A QUARTER OF A CENTURY.

AWARDED 53 GOLD AND SILVER MEDALS BY VARIOUS AGRICULTURAL SOCIETIES.

TIPPER'S MEDICATED POWDERS,

Specially prepared for Horses, Cows, Pigs, Sheep, and Poultry. They surpass anything ever introduced, preserve *health*, *strength*, and *condition*, cure Coughs, Colds, Worms, &c., and are the best known preventitives of disease. Will keep in any climate. Sold in 1s., 4s., 12s., and 24s. Canisters.

TIPPER'S DOG (MEAT) BISCUITS,

Keep Dogs in good condition and free from disease.

TIPPER'S LACTEAL COMPOUND,

For rearing Calves without Milk, and improving their condition.

These are the only preparations of the kind manufactured by a qualified Veterinary Surgeon.

B. C. TIPPER & SON, M.R.C.V.S., BALSALL HEATH, BIRMINGHAM.

CATTLE MEDICINE.

ESTABLISHED MORE THAN FIFTY YEARS.

CORNER'S PINE'S DEVONSHIRE OILS

For Outward and Inward Application, is the best and cheapest remedy for any ailment Stock is liable to, and no stable, farmyard, or shepherd should be without them.

For the Fly and Maggot in Sheep.—Nothing can surpass their value in summer for healing the worst Sores caused by the Fly, at the same time invigorating the growth of Wool.

In Sheepshearing, for Cuts, Sores, or Sprains.

Lambing.—Invaluable to the Shepherd during Lambing, for Colds, Inflammations, Cleansing, Udder-ill, Scour, &c.

Cattle and Horses.—As an Embrocation or Drench for Bruises, Swellings, Sprains, SWOLLEN UDDERS OF COWS, the Scour in Calves, Internal and External Inflammations, Butts, &c., Wounds or Galls of any kind. *WINE SIZE*, 2s.

Sole Proprietor, RICHARD CORNER,

WELLINGTON, SOMERSET.

*** *Anyone vending an article purporting to be* PINE'S DEVONSHIRE OILS, *without his Signature on the bottle, will be proceeded against.*

Supplied by all Wholesale Houses, of whom Bills, Posters, and Show Cards can be had.

SCOUR IN LAMBS CURABLE BY

THE DEVONSHIRE COMPOUND.

This Preparation has not been equalled for its immediate effects in checking this fatal disease in Lambs, AND IS QUITE A DIFFERENT PREPARATION to the Devonshire Oils. *In Bottles, 2s. each.*

TESTIMONIAL. Tedburrow, Hemyock, Oct. 23, 1861.

"Dear Sir,—The DEVONSHIRE COMPOUND you sent me I have used in six cases of Scour in Lambs, with complete success in each case; I therefore think it a useful medicine, having lost fifteen Lambs before I used the compound."—I remain, dear Sir, yours very truly, JOHN FARRANT.

Mr. R. Corner, Wellington.

CRAVEN'S VERMIN POISON,

For the effectual Destruction of RATS and MICE.

Guaranteed Second to None. Sale Increasing Daily.

USE CRAVEN'S VERMIN POISON,

For the efficacy of which numerous Testimonials have been received. Sample Packets Post Free. Prices, 2d., 3d., 6d., and 1s.—1s., 1s. 6d., 3s, and 6s. per dozen. Carriage Paid. Counter Bills.

F. CRAVEN, Chemist, Batley Carr.

A E I THE MOST PERFECT MARKING INK,

For Writing or Stamping on Linen, Cotton, Silk, &c.

The advantages of this Ink are that it requires no heat, flows freely from the pen, does not blot or run, and cannot be removed without destroying the fabric. Sold in Bottles, 6d., 1s., 2s. 6d., 4s. 6d., 7s. 6d., and 12s. 6d. each, by all Chemists and Medicine Vendors.

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A Liberal Discount to Large Buyers and Shippers

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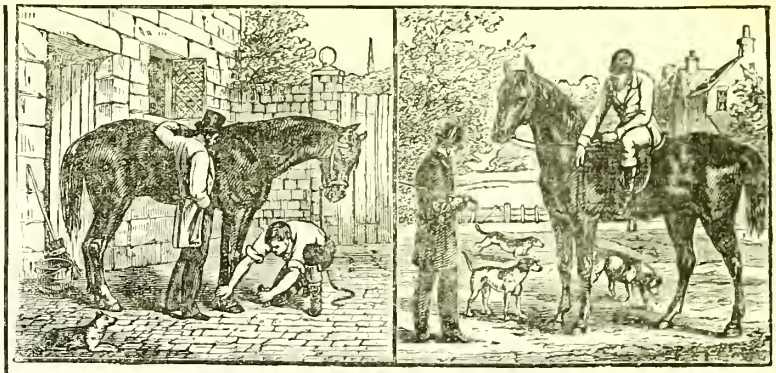
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HAVE RECEIVED AT EACH EXHIBITION the HIGHEST AWARD made for CRUCIBLES. The quality is uniform, withstanding the greatest heat without danger, and they never crack. Porous Battery Cells, &c., are manufactured by

THE PATENT PLUMBAGO CRUCIBLE COMPANY,

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ELLIMAN'S ROYAL EMBROCATION
IN BOTTLES 2s. 2s.6d. & 3s.6d. EACH
A CERTAIN CURE FOR
Sprains, Curbs, Splints, Spring Sinews, Overreaches, Chapped Heels, Windgalls, Lameness, Broken Knees, Sore Backs, Sore Shoulders, Bruises, Sore Throats, Influenza.
PREPARED BY ELLIMAN, SONS & CO., SLOUGH.
ELLIMAN'S ROYAL EMBROCATION is used in most Studs and in a large proportion of the Stables of the Masters of Stag and Fox Hounds; among others—the Duke of Rutland; the Earl of Macclesfield; the Marquis of Huntly; Hon. R. Baillie Hamilton, M.P.; Lord Middleton; Duke of Buccleuch; Earl of Yarborough; Earl of Shannon; Earl of Eglington and Winton; Earl of Zetland; Earl Percy; the Hon. Ralph Nevill; Viscount Valentia; J. T. D. Llewelyn, Esq.; A. Brassey, Esq.; J. B. Booth, Esq.; C. Morrell, Esq.; Capt. R. Tonson Rye; Lieut.-Col. Everett.



Lame Hunter. (Trade Mark.) The Royal Hunter Cured.
ELLIMAN'S ROYAL EMBROCATION.

SPRATTS PATENT
MEAT "FIBRINE" DOG CAKES & POULTRY MEAL,
DOG MEDICINES AND DOG SOAP.

☞ TO CHEMISTS AND DRUGGISTS. ☜

The above Goods have an enormous Sale. For Terms, address—

"SPRATTS PATENT," Bermondsey, S.E., or order through your Wholesale House.

Wholesale Agents for the Soap and Dog Medicines:—Barclay & Sons; Sanger & Sons; Sutton & Co.; F. Newbery & Sons; Lynch & Co., London; Raimes & Co., Edinburgh, York, and Liverpool; Ravensdale Mill Co., Dublin; Woolley, Sons & Co., Manchester; Taylor, Gibson & Co., Newcastle-on-Tyne; Goodall, Backhouse & Co., Leeds; and of all Wholesale Houses.

HORSE, CATTLE, AND SHEEP MEDICINES.

BY ROYAL APPOINTMENT.

TO HER MAJESTY THE QUEEN.

By Special Warrant, Dated 27th December, 1865.

DAY, SON & HEWITT,

INVENTORS AND SOLE PROPRIETORS OF THE

TO H.R.H. THE PRINCE OF WALES.

By Special Warrant, Dated 10th February, 1866.

"ORIGINAL" STOCK BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep, and Lambs.

Patronised for over 40 years by Royalty, and the principal Stock Breeders, Horse Proprietors, and Agriculturists of the British Empire.

The No. 2 Medicine Chest contains the following matchless remedies:—

"CHEMICAL EXTRACT," for all External Injuries, and Ewes Lambing.
"GASEOUS FLUID," for Colic, Scour, or Diarrhœa, and Debility.
"RED DRENCH," for Cleansing Cows and Ewes, and for Inflammation.
"RED PASTE BALLS," for Mares after Foaling, and Conditioning Horses.
"BRONCHOLINE," for Husk or Hoose in Sheep, Lambs, and Calves.
"GASEODYNE," for Heaving and Paining, "CARMINATIVE CHALK," &c.

Price of Chest, with Guide to Farriery, £2 16s. 6d. No. 1 Complete Medicine Chest, in Polished Case, £6 6s. Horsekeeper's Chest, No. 4, £2 17s. 6d.

CARRIAGE PAID TO ALL PARTS.

Admirably adapted for all ordinary ailments among Stock, and each preparation can be had separately. Full and easy directions enclosed.
Awarded "Certificate of Merit" by the National Agricultural Society of Victoria, Australia, Spring Exhibition, 1871; President's Medal, Spalding Show, July, 1872; Silver Medal, Manchester and Salford Show, November, 1874; Silver Medal, Preston Agricultural Show, June, 1875; Silver Medal, Northamptonshire Agricultural Society, Stamford Show, September, 1875; Silver Medal, Cheshire Agricultural Society, Crewe Show, September, 1875; Special Prize, National Agricultural Society of Victoria, Australia, November, 1875; Medal, Cheshire Agricultural Society, Cheshire Show, 1876; Silver Medal, South African Exhibition, Cape Town, 1877; Silver Medal, Northumberland Agricultural Society, Newcastle-on-Tyne Show, August, 1877; Silver Medal, Knutsford Show, July, 1878; Medal, North Berwick Show, July. 1878; Medal, Dairy Show, London, October, 1878; Silver Medal, Derby, September, 1879; Silver Medal, Wellingborough, September, 1879; and Medal, Bentham, September, 1880.

Caution.—*Beware of low-priced Imitations, and see that the name of* Day, Son & Hewitt *is on all Bottles and Packets.*

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CUPISS'S CONSTITUTION BALLS.

THE best and most effectual Medicine for preserving Good Health and Prime Condition in that Noble Animal THE HORSE.

ALSO FOR NEAT CATTLE they are invaluable both in Disease and as a means of preserving health. Bullocks fatten much faster and at a less cost by occasionally giving a Ball.

PREPARED BY

FRANCIS CUPISS, M.R.V.C.S.,
DISS, NORFOLK.

Sold by all Chemists and Patent Medicine Vendors.

Persons using the Balls may consult the Proprietor gratuitously.

TO CHEMISTS.

MR. CUPISS, Diss, Norfolk, Proprietor of the Constitution Balls, will have pleasure in supplying the Trade, on application, with Bills for distribution, and Posters, which are very attractive, delivered free to any House in London, or other large town, for inclosure; and to prevent error, it is desirable to send a card of address.

Important Notice to the Trade.

HELLIAR'S FLY TICK & LEAR POWDER,

For Dressing Sheep and Lambs.

ESTABLISHED 1857.

May be sold without Registration, as it contains no poison prohibited by Act. Sold in Tins at 1*s.* for 20, 2*s.* for 50, and 3*s.* 6*d* for 100 Sheep, with full instructions for use.

IMPORTANT TESTIMONIAL from W. F. BENNETT, Esq., Chilmark, Salisbury.—"Your Fly Powder has been used on my flock some years, and I have always found it most efficacious in keeping off the fly and killing ticks; in fact, I have not dipped my lambs for the last two years.—Aug. 30, 1875."

1/- size, 9/-; 2/-, 18/-; 3/6, 31/6 per doz., carriage paid, discount 5 per cent. 3 months' account.

LONDON WHOLESALE AGENTS:—Barclays, Sangers, W. Edwards & Son, Hovenden & Sons. EXETER: Evans, Gadd & Co.

PREPARED ONLY BY

EDWIN HELLIAR, Manufacturing Chemist,
YEOVIL, SOMERSET.

CASTOR OIL SHEEP OINTMENT.

The most effectual Cure of Scab, Killer of Ticks, Red Lice, and all other Parasites; also,

GENUINE SHEEP OINTMENT.

Prepared by steam power, and none but the best materials being used, these Ointments are uniform in strength, and the consistency most suitable for Smearing in hot or cold weather.

Sold in Drums of 4, 7, 14, 28, 56, *and* 112 *lbs. each.*

THE "GLYCERINE DIP"

(HARDWICKE, GUERIN, & CO.'S),

FOR SHEEP & LAMBS,

GREATLY PROMOTES THE GROWTH OF THE WOOL.

A certain Preventive and Cure of Scab, Destructive to Ticks, Lice, and all Parasites infesting the Skins of Sheep, Cattle, and other Animals. Price 6*d.* lb.

Sold in Drums of 5, 10, 20, 30, 40, 50, *and* 100 *lbs. each.*

THE ORIGINAL "LUDDINGTON'S OILS,"

THE CELEBRATED

HORSE, SHEEP, AND CATTLE MEDICINE.

Unrivalled as a Safe, Effectual, and Speedy Remedy for all Diseases in Horses, Sheep, and Cattle, and is invaluable in cases of DIFFICULT LAMBING, FOALING, and CALVING.

In Bottles, 2*s.* 6*d.*, 5*s.*, *and* 10*s. each.*

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TOMLINSON & HAYWARD,

MANUFACTURING CHEMISTS, LINCOLN.

Agents required in every Town. Hand-bills, Pamphlets, Posters, Show Cards, for these and their other preparations—BUTTER POWDER, "GRANULAR BROWNING," DANDELION COCOA—supplied on receipt of trade address.

HORSES.—LIEUT. JAMES'S BLISTER

(Manufactured by R. J. JAMES, the Grandson of the Inventor).

This celebrated Blister is now offered to the Trade at the following reduced prices:—



1 oz. pots from			14/- per doz. to			12/6 per doz.		
2 "	"	£1	5	6	"	£1	3	0 "
4 "	"	2	8	0	"	2	4	0 "

½ lb. pots from	£4	4	0 per doz. to	£4 0 0
1 " "	7	16	0 "	7 10 0

Observe the Trade Mark.—"*A Horse's Head on the top of each Pot, and the signature, R. J. James.*"

Wholesale Agents, BUTLER & CRISPE, 4 Cheapside; NEWBERY, 37 Newgate Street; MAW, SON & THOMPSON, 11 Aldersgate Street; HAYES & Co. Dublin; GOULDING, Cork; FOGGITT, Thirsk; and SANG & BARKER, Edinburgh. Agents for the Colonies required. Apply, with reference, to R. J. JAMES, 15 Union Bank Buildings, Ely Place, London, E.C.

JAMES v. JAMES.—LORD ROMILLY, the Master of the Rolls, on February 23, 1872, declared "that I had an equal right with other members of the Inventor's family possessing the receipt to make and sell this Blister."—R. J. JAMES.

ESTABLISHED 1833.

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CAUTION.

The annexed Label is at the top of every Pot of the *ORIGINAL* and only *GENUINE BLISTER.*

The Messrs. Barclay & Sons, 95 Farringdon Street, London, and Messrs. Raimes & Co., Edinburgh, Liverpool, and York, are now and have been Agents 45 years.

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COLONIAL AGENTS:—MELBOURNE and WELLINGTON: Felton, Grimwade & Co.; SYDNEY, BRISBANE, and LAUNCESTON: Elliott Bros. & Co.; DUNEDIN and AUCKLAND: Kempthorne, Prosser & Co.; CALCUTTA: Smith, Stanistreet & Co.

R. S. JAMES, 31 Years Sole Manufacturer, **STANFORD, FARINGDON, BERKS.**

Advertised in "Bell's Life" 45 years. Beware of a Spurious Imitations.

100 Rats destroyed for a Shilling by

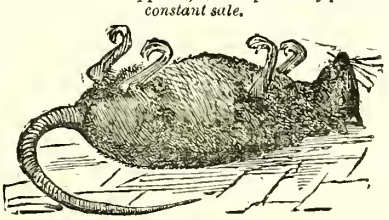
BARBER'S PHOSPHOR PASTE.

WRAPPED NEATLY FOR THE COUNTER.

Handsome attractive Posters supplied; if conspicuously placed will command constant sale.

Kills Rats, Beetles, &c.

THE DEAD VERMIN DRY UP WITHOUT SMELL.



Guaranteed the best destroying Paste in the world.

3*d.*, 6*d.*, 1*s.*, 2*s.* 6*d.*, and 5*s.* Tins. Also

BARBER'S VERMIN KILLER.

SOLD THROUGHOUT THE WORLD.

Kills Mice upon the spot. In packets, 3*d.*, 6*d.*, and 1*s.*

Be not deceived with worthless imitations. Observe the Name !!

The VERMIN KILLER sent free by post at the following prices:

2d.	3d.	6d.	1s. 0d.	
1s. 0d.	1s. 6d.	3s. 0d.	6s. 0d.	.. Per Dozen.

The PHOSPHOR PASTE, at same prices. Carriage paid per rail for enclosure to any Wholesale House, or direct, for quantity of either Paste or Killer.

☞ *Special arrangements are made for Sole Agency with Chemists.*

WORKS, SALISBURY: ESTABLISHED 1848.

Special Quotations to Shippers. Supplied by all the London Wholesale Houses

"HUNTER'S" INFALLIBLE VERMIN DESTROYER.

"The Best Extant."

Thirty-five years' Reputation.

The enormous sale last year of this old-established article, and the few specimens of testimonials below, stamp it as undoubtedly "the best extant." It is very neatly and very carefully put up throughout, and is indeed a most satisfactory article in every respect, proof of which lies in the fact of its having — although not constantly advertised — steadily maintained its reputation as such, ever since its introduction to the trade and the public, now about thirty-five years ago.



1d., 2d., 3d., 6d., and 1s.

"CANNOT BE EXCELLED."

From Mr. Smith, Chemist, Glasgow:—"I have not kept any other 'Vermin Killer' than yours for the last four years. It is the best I ever sold."

From Mr. Geo. Eagle, Merrickville, Sydney, Australia, to Mr. Mitchell, Druggist, Pitt Street, Sydney:—"Sir,—I promised to let you know how 'Hunter's Vermin Destroyer' acted. Its effect was wonderful; in one night it destroyed all the rats and mice about my house, which was swarmed with them."

From Mr. A. Billington, Chemist, Wakefield: August 28, 1878:—"Dear Sir,—Please send me a few of your Vermin Killer Registers. I can bear testimony to the deadly effect of your 'Killer,' having one night laid in my warehouse the contents of a 2*d.* packet, and found in the morning no fewer than forty dead mice."

VIDE TESTIMONIALS.

From Messrs. P. Smith & Co., Chemists, Runcorn, October, 1880.—"In our opinion your 'Destroyer' is the best extant."

From Mr. James Froud, Chemist, Dorchester:—"Your poison succeeds to admiration. It is as effective as an infernal machine."

From Mr. Jas. Thompson, Low Hesket, near Carlisle, to Mr. R. T. Pattinson, Chemist, Carlisle:—"Sir,—You can with confidence recommend 'Hunter's Vermin Destroyer.' It is the best thing I ever used, having often cleared stack-yards of both rats and mice in a day or two."

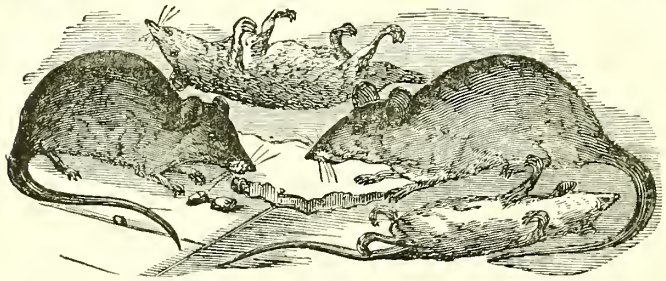
From Mr. Edward Thornton, Chemist, Lyme Regis:—"I can bear testimony to the efficacy of your 'Killer.' Parties who have purchased it of me say that it is the best they have tried. Mice are rapidly destroyed by it, and it quite answers the description you have given of it."

Kept in Stock by all the Wholesale Houses in the Trade throughout the United Kingdom. Vide Trade Lists, &c.

LABORATORY—WESTGATE & UNION STREET, DEWSBURY, ENGLAND.

BATTLE'S VERMIN KILLER.

Mice eat it readily, and Die on the spot.



Has an immense Sale, and wherever introduced never fails to give satisfaction.—Mice appear attracted to it as by magic, eat it readily, tumble over, and die on the spot. Rats usually die in their runs.—Parties troubled with Vermin may be cleared at once, either from Stacks, Houses, or Ships.

TESTIMONIALS.—*Thousands might be published.*

From Mr. THOMAS COLTON, Agent for Selby.—A friend of mine purchased a Packet of your VERMIN KILLER last night, doubting its efficacy; to-day he called in to say that he had found fifteen dead mice, and had only used part of a packet.——From Mr. EDWARD STURDY, Flemington Mills.—I duly received by post the Packet of your VERMIN KILLER, and found it as represented in your advertisement. It speedily destroyed all the mice in my granary. I enclose 2*s.* for two more Packets.——Leeds, November 6th, 1857.—I have tried BATTLE'S VERMIN KILLER, and have found it most effectual in clearing my premises of LARGE QUANTITIES OF RATS.—THOMAS S. CROSLAND.—Mr. Stead.

Sold in Packets, 3d., 6d., and 1s. each.

SOLE PROPRIETOR:

Mr. J. R. BATTLE, Chemist, Lincoln, England.

No Chemist or Storekeeper should be without a supply.

DRUGS, CHEMICALS, PHARMACEUTICAL PREPARATIONS.

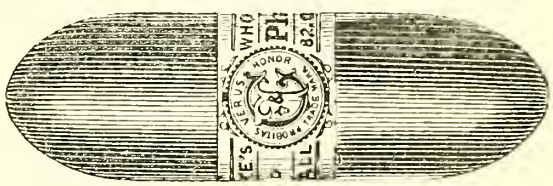
GABRIEL & TROKE,

Wholesale and Export Druggists and Manufacturing Chemists,

82 CITY ROAD, LONDON.

GABRIEL & TROKE'S

REGISTERED CAPSULED HORSE BALLS,



The superior advantages of these Balls are obvious. The mass is confined in a hermetically sealed gelatinous Capsule, perfectly harmless, and immediately dissolved in the stomach. The Capsule will not only prevent the Ball from getting dry and hard, but will preserve its purity and power for any reasonable time, and ensure the effectiveness of the medicine—especially when such drugs as Camphor, Ammonia, or Essential Oils are prescribed. These Capsuled Balls are most convenient and safe and well adapted for export, keeping good in any climate. They are put up in Boxes of 1 dozen each. Capsuled Balls of the most approved formulæ on hand, and private recipes faithfully and accurately dispensed. Shipping orders promptly and carefully executed, and at lowest market prices. Price Lists of a very extensive character in the most handy referable style on application.

Manufactured solely by GABRIEL & TROKE,
WHOLESALE DRUGGISTS, 82 CITY ROAD,
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MANUFACTURERS OF ALL VETERINARY PREPARATIONS, EVERY KIND OF VETERINARY INSTRUMENTS AND SUNDRIES.
SAMPLES AND SPECIAL QUOTATIONS FOR LARGE BUYERS.

THE CONDY'S FLUID CASE.

TWO APPEALS.

CONDY *v.* MITCHELL.

(The question of Proprietary Right.)

Court of Appeal, Lincoln's Inn, *Nov. 27th*, 1877—CONDY, *Appellant.*

LORD JUSTICE JAMES (without needing to hear Defendant's Counsel) said—That such a suit should have been instituted at all was very remarkable; but that, after the learned Vice-Chancellor's judgment, this appeal should have been brought on was particularly strange. Dr. Mitchell had obtained his right by payment of a substantial money consideration, and Condy's Fluid and Condy's Ozonised Water were as much his property as the Plaintiff's, WITH ALL THE REPUTATION THERETO ATTACHED, **PRIZE MEDALS INCLUDED.** Having that right, Dr. Mitchell was entitled to set up the Condy's Fluid Company.

LORD JUSTICE BAGGALLAY was of the same opinion. The style of the partnership had been "Bollman Condy & Co.," and the plaintiff had set up in his own name of "H. Bollman Condy." It was not necessary to consider whether he could have been restrained from doing so; but he came with a very bad grace against the defendant. It was to be regretted that the plaintiff had resorted to the method he had used to obtain evidence. He had resorted to what was, in fact, a trap to catch chemists.

LORD JUSTICE THESIGER was also of that opinion, and especially as to the character of the plaintiff's (Condy's) evidence.

LORD JUSTICE JAMES: Appeal dismissed with costs.

MITCHELL *v.* CONDY.

(The Partnership Accounts of the late Firm of Bollmann Condy & Co.)

Court of Appeal, Lincoln's Inn, *May 18th*, 1881—CONDY, *Appellant.*

The MASTER OF THE ROLLS, in delivering judgment, said:—I am at a loss to understand the ground of this appeal. The bargain between the parties, clearly set out in the Partnership Deed, was this: The one (Mitchell) to pay a premium of £1,500, and to bring into the partnership £1,500 more; the other (Condy), who had, he said, capital sunk in the business, to have his said capital taken at the sum whereat it stood in March, 1866, namely, £2,496. There is not the slightest doubt or ambiguity about the matter, and so the Vice-Chancellor decided. The decree for the partnership accounts to be taken was made so long ago as the 15th June, 1877. It was made on the admission by the defendant (Condy) of the Articles of Partnership, and without a hint being thrown out that there was anything erroneous in them requiring revision or alteration. The suggestion which has been made on the part of the defendant (Condy), that a man who had entered into partnership may plead that he is taken by surprise when his partner insists on the plain terms of the Partnership Deed being held to be binding, cannot for a moment be listened to. This appeal must be dismissed.

LORD JUSTICE JAMES: I entirely concur. The attempt that has been made to seek to control or nullify the provisions of so formal an instrument as a Deed by reference to anterior conversations and memoranda is very idle.

LORD JUSTICE LUSH: I am quite of the same opinion. In the statement of defence, from the beginning to the end, there is not a suggestion that the Articles of Partnership were ever departed from, by parol or otherwise, so as to concede to the defendant (Condy) an increase in the estimate of his capital beyond the amount specified in the Deed.

The MASTER OF THE ROLLS: Appeal dismissed with costs.

N.B.—The CONDY'S FLUID COMPANY are determined to put a stop to the underhanded attempts made to pass off goods bearing labels and names of firms fraudulently resembling theirs. The Company beg to bring this practice to the notice of the trade, to whom they would feel obliged for information leading to detection.

Reduced Trade Prices, and most liberal Wholesale Terms.

THE CONDY'S FLUID CO.,

7 FALCON STREET, LONDON, E.C.

GENUINE CONDY'S FLUID.

The Genuine Condy's Fluid of proper composition and strength always contained, in addition to its disinfecting properties, *certain antiseptic salts*, greatly enhancing its value when used. This is only manufactured by the undersigned.

CAUTION.—To avoid Fraudulent Imitations every Label should bear the Fac-simile Signature of the Inventor and Address as under.

When Chemists order my Disinfecting Fluid they should see that they get the proper article.

H. Bollmann Condy

Inventor, Patentee, and Manufacturer, Battersea, London, S.W.

The Best Black Beetle and other Vermin Eradicator.



CHLORIDE OF LIME,

IN WATERPROOF, AIRTIGHT, & ODOURLESS PACKAGES.

Protected by Royal Letters Patent.

Is neat and clean, and convenient for use. Being airtight and odourless, retains its strength unimpaired.

It is admirably adapted for Export, and will keep for years in any climate.

In 1-lb., ½-lb., and ¼-lb. Packages, packed into 24-lb. Boxes and 50-lb. Cases, each separately, or th three sizes assorted in each Box or Case. Penny Packages, in 1-gross Boxes; also into 1-cwt. and ½-cwt. Cases, to meet the requirements of the Export Trade and large buyers.

Packed also in Jars, Bottles, Casks, and Cases to order.

The Wholesale Trade and Shippers only supplied, and a Liberal Discount given. Samples and Terms on application.

Wholesale Agents:—S. MAW, SON & THOMPSON; BURGOYNE, BURBIDGES & CO.; BARCLAY & SONS; W. EDWARDS & SON; LYNCH & CO.; F. NEWBERY & SONS; HARVEY, SHEPHERD & CO., JAS. WOOLLEY, SONS & CO., Manchester; EVANS, SONS & CO., Liverpool; or may be had of any other Wholesale Druggist or Shipper.

NATIONAL CHEMICAL CO., 55 PITFIELD STREET, LONDON, N.

15th August, 1881.

LATEST LIST OF

REDUCED PRICES!!!

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Condy's Fluid

AND OZONISED WATER.

CONDY'S FLUID RED (with Prize Medals)				1s.	size,	4s. per doz.
,,	,,	,,	,,	2s.	,,	8s. ,,
,,	,,	,,	,,	4s.	,,	16s. ,,
CONDY'S OZONISED WATER	-	-	-	2s.	,,	8s. ,,
,,	,,	-	-	- 3s. 6d.	,,	16s. ,,

DISCOUNTS.

SMALL QUANTITIES, NETT CASH ON DELIVERY.

Assorted Orders for 6 dozen, 5 per cent. discount Cash on Delivery.

,, ,, 1 gross, 10 per cent. and 2½ per cent. Cash on Delivery.

Special Terms for larger quantities sent on application.

DISCOUNTS.

R. CONDY & CO.,

Disinfecting Fluid Works, LONDON, S.W.

This purely vegetable mild aperient effects a gentle relief of the bowels, without causing irritation. Excellent remedy in cases of habitual constipation. Pleasant to take, and causing no griping pains.

TAMARIND
LOZENGES,
Prepared by C. KANOLDT, MANUFACTURING CHEMIST, Gotha, Germany.
SOLE AGENT FOR GREAT BRITAIN AND THE COLONIES—
PAUL METZ, 10 Jewin St., London, E.C.

Dose, for Adults, 1 Lozenge: for Children, from ¼ to ½, before going to bed. Sold in elegant Cardboard Boxes, containing respectively 6 and 12 Lozenges, at 1/6 and 2/6 Retail, including Stamp. Wholesale Prices on application.

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QUEEN VICTORIA STREET, E.C.

GOLD MEDAL, PARIS, 1878.
JOSEPH GILLOTT'S
STEEL PENS.
Sold by all dealers throughout the World.

INDEX TO ADVERTISEMENTS,
See pp. 39 and 40.

The Chemists' & Druggists'
DIARY, 1882.
NOW PREPARING.

ADVERTISEMENTS for this important Publication should be sent in at once.

This Diary is used EVERY DAY ALL THE YEAR ROUND on thousands of Chemists' desks in this country and in all parts of the world where English-speaking Druggists are found.

☞ **SUPPLIED TO EVERY MEMBER OF THE PHARMACEUTICAL SOCIETIES OF VICTORIA AND NEW SOUTH WALES.**

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(SOLE MANUFACTURERS OF MORGAN'S PATENT CRUCIBLES).

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Moscow, 1872, only First-Class (Gold).

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CLAY CRUCIBLES, ETC.

EXTERIOR DIMENSIONS.

Attention is drawn to the description on the Crucibles below, and in ordering these particulars should be given to prevent errors and disappointments.

BATTERSEA ROUND.

Stamped as on Illustration.



No.	Height, inches	Width, inches	Crucibles, per doz.	Covers, per doz.
A	2⅝	1⅝	£0 0 5	0/6
C	3¼	2¼	0 0 9	0/6
E	4¼	2⅝	0 1 4	0/9
G	5⅜	3⅜	0 2 0	1/0
J	6⅜	4⅜	0 3 0	1/6
L	8	5¼	0 5 6	2/0
N	9⅜	6¼	0 9 0	3/0
P	11	7⅜	0 15 0	3/6
R	13	9⅜	1 3 0	5/0

The above 9 sizes form one nest. Price 60/0 per dozen nests. Any size can be had separately.

No.	Height, inches	Width, inches	Crucibles, per doz.	Covers, per doz.
B	3	1⅞	£0 0 6	0/6
D	4	2⅜	0 0 10	0/6
F	5	3	0 1 5	1/0
H	5⅞	3¾	0 2 1	1/3
K	7¼	4⅝	0 3 2	2/0
M	8¼	5⅜	0 6 6	2/6
O	10	7	0 13 6	3/6
Q	12	8⅝	0 17 0	4/0

The above 8 sizes form one nest. Price 45/0 per dozen nests. Any size can be had separately.

BATTERSEA TRIANGLE.

Stamped as on Illustration.



No.	Height, inches	Width, inches	Crucibles, per doz.	Covers, per doz.
S	4½	4⅛	£0 2 0	1/0
U	3⅝	3¼	0 1 1	0/9
W	2⅝	2⅜	0 0 8	0/6
Y	2½	2⅛	0 0 5	0/6

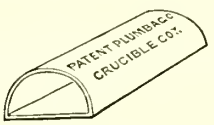
The above 4 sizes form one nest. Price 4/2 per dozen nests. Any size can be had separately.

No.	Height, inches	Width, inches	Crucibles, per doz.	Covers, per doz.
T	4	3⅜	£0 1 6	1/0
V	3¼	2¾	0 0 10	0/9
X	2¼	2¼	0 0 6	0/6
Z	1⅝	1⅝	0 0 4	0/6

The above 4 sizes form one nest. Price 3/2 per dozen nests. Any size can be had separately.

The BATTERSEA ROUND and TRIANGLE forms are particularly well suited for packing, being made to nest, ensuring great economy in freight and shipping charges.

MUFFLES.





With or without apertures.

No.	Long, in.	Wide, in.	High, in.	Price, per doz.
A.	7	3½	2½	12s.
B.	7½	4⅜	2⅞	15s.
C.	8	4⅝	3	18s.
D.	8½	5	3½	21s.
E.	9	5½	3⅝	24s.
F.	10	6	4	27s.

No.	Long, in.	Wide, in.	High, in.	Price, per doz.
G.	11	4	3½	21s.
H.	10½	5½	3⅝	25s.
J.	12	6	4	33s.
K.	14	8	5	48s.
L.	15	9	6	54s.

Sizes A to F are suited for the Furnaces of the same letters.

H to L have one slit at back only, none at sides.

In addition to those priced above, Muffles are made of all shapes and sizes, suitable for Assayers, Enamellers, Dentists, &c.

SCORIFIERS.

(PER GROSS.)

Inches Diam.	Price.	Inches Diam.	Price.
1	3s. 0d.	2½	6s. 0d.
1½	3s. 6d.	3	7s. 6d.
1⅝	4s. 0d.	3½	9s. 0d.
2	4s. 6d.	4	10s. 6d.
2¼	4s 6d.	5	12s. 0d.
2½	5s. 0d.		



ROASTING DISHES.



No.	Diam. in.	Per doz.	No.	Diam. in.	Per doz.
1	2½	1s. 3d.	3	4	1s. 9d.
2	3	1s. 6d.	4	5	2s. 0d.

ASSAY CRUCIBLES.

THE MINT OF THE UNITED STATES AT SAN FRANCISCO,
OFFICE OF THE ASSAYER,
SAN FRANCISCO, CAL., April 19, 1877.

SIRS,—I have tested and used the Assay Crucibles and Annealing Cups, and can with assurance recommend their superior quality and durability.

Respectfully yours, &c.,
O. D. MUNSON, Assayer.

STATE ASSAY OFFICE,
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FALKENAU & REESE.

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THESE ARE PERFECTLY SMOOTH, AND OF THE CORRECT POROSITY.

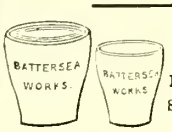
No.	Diam. in.	Height. in.	Per doz.
A.	1½	1½	2s. 0d.
B.	1½	1½	2s. 0d.
C.	1½	1½	2s. 0d.
D.	1⅝	2	2s. 0d.

Covers for either size, 6d. per doz.



2.—FOR COPPER.

CORNISH FORM AND QUALITY.



Nest of Two { 3½ in. high, 3 in. diam. / 2½ „ 2 „ } 2s. per doz.

Single .. 2 „ 2½ „ 1s. „

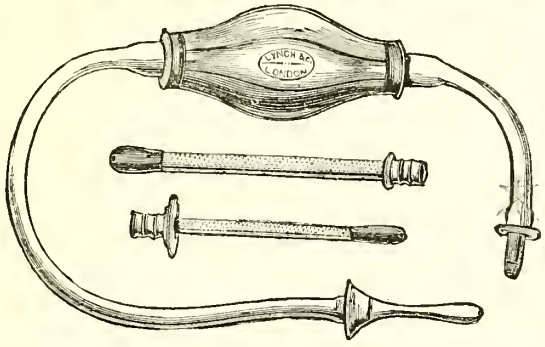
All Forms and Sizes can be had.

Among the English Firms who have received Awards at the Centennial, Philadelphia, are the Patent Plumbago Crucible Company, Battersea Works, London, for Jewellers' and Chemists' Furnaces, Mufflers, Crucibles, and Scorifiers.—*Chemist and Druggist.*

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		£	s.	d.
433A.	HIGGINSON'S, unvarnished india-rubber, with rectum pipe only, in stout hinged cardboard boxes ... ... per doz.	1	1	0
433B.	Ditto, with elastic-gum vagina pipe and leather shield ... ... „	1	6	0
434.	Ditto, barrel shaped, with bone rectum pipe, elastic-gum vagina pipe, to plug on, and patent leather shield, in slide cedar boxes ... ... per doz.	1	14	0
434A.	Ditto, ditto, with disconnecting mounts... ... ... „	1	16	0
435.	Ditto, cylindrical, superior brass mounts, with bone bulb-pointed seat pipe, elastic-gum vagina pipe to screw on, and patent leather shield, in superior velvet-lined mahogany boxes ... ... per doz.	3	0	0
435A.	Ditto, requiring no metal mounts; black, blue, green, red, or white india-rubber, with bone rectum pipe, elastic-gum vagina pipe, and leather shield, in cardboard boxes per doz.	1	16	0
435B.	Ditto, ditto, superior quality, in oval boxes of cloth or leather ... ... „	3	0	0
436.	LYNCH'S FAMILY, on Higginson's principle, fitted with bone bulb-pointed rectum pipe for adults, elastic-gum rectum pipe with bone shield for children, and elastic-gum vagina pipe in mahogany box ... ... per doz.	2	8	0
437.	Ditto, in slide cedar box ... ... „	2	3	0
437A.	LYNCH'S PERFECTION, in mahogany box ... ... „	2	17	0
437B.	Ditto, in slide cedar box ... ... „	2	10	0
437C.	Ditto, in superior mahogany box, with lock and key ... „	3	12	0

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The formula is the property of the eminent Dr. Webster, who testifies that "during a lengthened experience" he has "never known it to prove inoperative."

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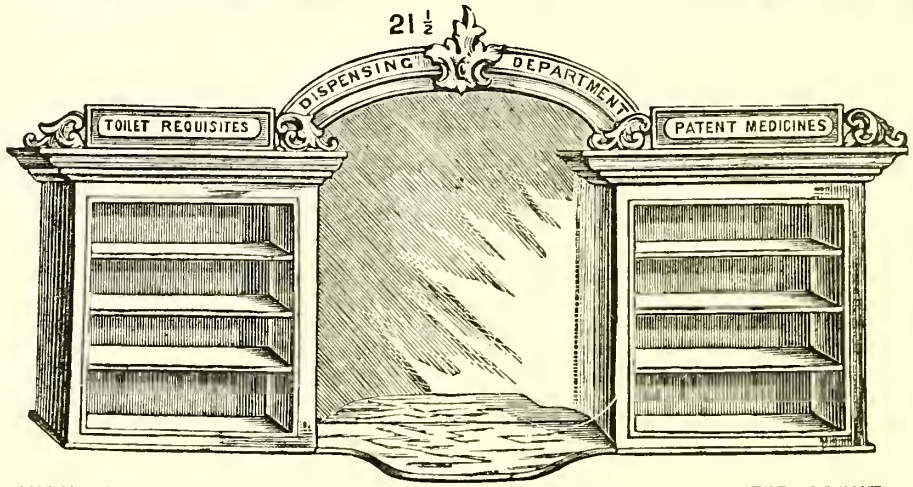
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For Export or easy transit it is admirably adapted, as it takes to pieces, and can be fixed again in an hour. Packs into a Case 34 by 36, at a cost of 10s., 3s. of which is allowed if the empty is kept, and the full value allowed if returned carriage paid.

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PREPARED BY AN IMPROVED PROCESS BY WHICH THE VIRTUES OF THE TARAXACUM OR DANDELION ROOT ARE RETAINED IN A HIGH DEGREE.

In Tins, 6d., 9d., 1/0, and 1/6.

Is by far the best in the market. Excellent in quality, neatly packed, cheap and economical, and a very saleable article.

BEWARE OF WORTHLESS IMITATIONS

Wherever this superior preparation is introduced, Chemists find a ready and increasing sale.

AGENTS WANTED THROUGHOUT ENGLAND AND THE COLONIES.

SOLD BY NEARLY ALL FIRST-CLASS HOUSES.



A LARGE BUYER writes:—"Our customers ask for Mawer's Taraxacum, and will have no other, and we are doing well with it."

A NOBLE EARL, the oldest in the House of Peers, sends the following message:—"Present my compliments to Messrs. Mawer, and tell them I like their Taraxacum, and it agrees with me very well; and request them to send the usual number of tins."

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MAWER'S TARAXACUM COFFEE. — *Testimonial.* — "Lady Charlotte Hobart-Hampden has bought Mr. Mawer's Taraxacum Coffee for over a year and a half, and is able to say that it is much preferred here to the other kinds of Coffee, and that it is found more economical. Hampden House, Bucks."

IMPORTANT MEDICAL TESTIMONY.—"I believe Mawer's Taraxacum Coffee to be a very useful preparation for persons suffering with weakly stomachs or sluggish and inactive livers. It is light, and easily digested, and forms a pleasant and palatable beverage for breakfast or supper."—HENRY R. RUCKLEY, L.R.C.S.I., L.R.C.P.E., &c., &c.

See Analytical Report by Professor ATTFIELD, F.R.S., &c., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, on every tin.

Handbills, &c., sent on application to

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THE "DESIDERATUM" MIXING MACHINE

P. H. BRACHER & CO.,

77 HIGH STREET, WINCANTON.

J. Paul Liebe. DRESDEN. 10 Prize Medals. Award of Merit, Inter. Medic. & Sanit. Exhib. Lond., '81. 1st Prize Sydney, '79.—LIEBE'S SOLUBLE LEGUMINOSE, sole soluble Flour for Soups; requires no cooking; cheaper than Revalenta, Lentilla, common Leguminose, &c.; samples free.—Chocolate with Liebe's Soluble Leguminose, Cocoa with id.—LIEBE-LIEBIG'S SOLUBLE FOOD for Infants, prepared in vacuo upon Baron Liebig's principles.—LIEBE'S EXTRACT OF MALT, pure, concentrated, and unfermented; the same with cod liver oil, iron, quinine and iron, lime, hops; lozenges.—LIEBE'S PEPSINE WINE, digestive liquor. Export to any climate. Prospectuses free on application.—AGENTS.—*London*: F. Newbery & Sons, 1 King Edward Street; A. & M. Zimmermann 21 Mincing Lane; *Hitchin*: Perks & Llewellyn.

See page 16.

ESTABLISHED 1843.

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Wholesale & Export Confectioner,

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MEDICATED LOZENGES, REFINED LIQUORICE, JUJUBES, &c.

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Lozenges of all descriptions made from Customers' private formulæ (or ingredients) and stamped with name if required.

PRICE LIST ON APPLICATION.

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38 (late 16) OXFORD STREET (six doors from Hanway Street), LONDON, W.

ESTABLISHED A.D. 1833.

FIRST PRIZE (SILVER MEDAL) FOR TRUSSES AWARDED BY THE WORSHIPFUL COMPANY OF CUTLERS OF THE CITY OF LONDON, MAY 1879.

FIG. 1.

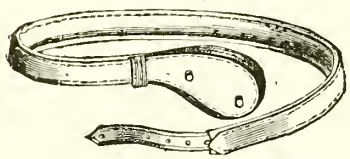


FIG. 4.

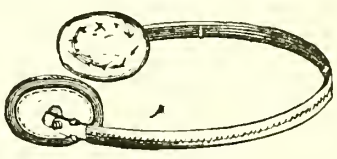
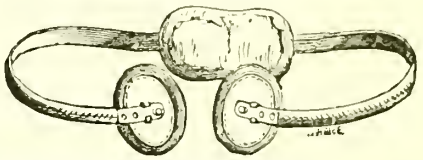


FIG. 5.



TRUSSES.

Circular Trusses, single, as Fig. 1, basil and chamois or basil and moleskin .. .. per doz.	£1	1	0
Circular Trusses, double, basil and chamois or basil and moleskin per doz.	1	14	0
,, ,, ,, with extending backs .. ,,	2	14	0
Salmon & Ody's Expired Patent, single, Fig. 4 .. ,,	1	10	0
,, ,, ,, double, Fig. 5 .. ,,	3	0	0
Moc-Main Lever, single .. .. each	0	8	0
,, ,, double .. .. ,,	0	13	6
Coles's Expired Patent, single .. .. ,,	0	5	6
,, ,, ,, double .. .. ,,	0	10	6
Scrotal Trusses, basil and chamois or moleskin, single .. ,,	0	4	0
,, ,, ,, ,, double .. ,,	0	7	0

SUSPENSORY BANDAGES.

No.				
1. Cotton Bags and tape under-straps .. .. .. per doz.	0	8	0
2. Cotton Oxonian, with drawing-strings .. .. ,,	0	10	0
3. Silk Bags and tape under-straps .. .. .. ,,	1	1	0
4. Silk Oxonian, with drawing-strings .. .. ,,	0	18	0
5. ,, ,, Bags bound with elastic .. .. ,,	1	4	0

SUSPENSORY BANDAGES—*continued.*

No.				
6. Silk Oxonian, superior quality, bands of buff jean, with drawing-strings .. .. per doz.	£1	4	0
7. Silk Bags, to button on, with tape under-straps.. ,,	1	1	0
8. ,, ,, ,, under-straps to button ,,	1	4	0

ELASTIC STOCKINGS, KNEE-CAPS, ETC.

Manufactured expressly for Export, and warranted to stand a hot climate better than any others in the Market.

	Silk.			Super. Silk.			Cotton.			Super. Cotton.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Stockings .. .. .. pair	0	9	0	0	13	6	0	5	3	0	6	6
Knee-caps .. .. .. ,,	0	6	0	0	9	6	0	3	6	0	5	0
Calf-pieces .. .. .. ,,	0	6	8	0	9	0	0	4	0	0	5	6
Socks .. .. ,,	0	5	0	0	7	6	0	3	3	0	4	6
Wristhands .. .. .. ,,	0	2	0		—		0	1	6	0	2	0
Knee Stockings .. .. ,,	0	15	0	1	3	0	0	8	9	0	11	6
Belts, to draw on .. ..each	0	15	0	1	1	0		—		0	9	0

The above may be obtained direct from the Manufacturers, or from their Wholesale and Export Agents, Messrs. Barclay & Sons, 95 Farringdon Street.

FROM NEW ZEALAND.

UNSOLICITED TESTIMONIAL TO

MR. N. G. WILCOCKS,

SODA WATER MACHINIST,

BACK STREET, BATH.

From THOMSON & CO.,
Steam Aërated Water Works,
BOND AND CRAWFORD STREETS, DUNEDIN;
CHELMER STREET, OMARU; and
SPIT, NAPIER.

To Mr. N. G. WILCOCKS.
Engineer,
BATH.

March 25th, 1881.

"Dear Sir,—We wish to convey to you, unsolicited, our appreciation and entire satisfaction with the Double Soda Water Pumps (large size) made by you and forwarded to us by Edgar Breffit & Co., London and Yorkshire. These reached Dunedin, per ship 'Zealandia,' in 1880, in splendid order and condition. We have had them working constantly six or seven months now, and for cheapness, durability and finish, combined with their strong carbonating power, we have seen nothing to equal them in 20 years' practical experience. "We are, dear Sir, yours faithfully, "THOMSON & CO."

Mr. Wilcocks can give numerous references to Pharmaceutical Chemists and others (which are kindly permitted) who use his make Machines, and will forward his Illustrated Price List, post free, on application.

Steam Engine and Boiler supplied for SOUTH AFRICA.

London, May, 1881.

Dear Sir,—We are glad to inform you that the Steam Engine and Boiler, shipped by us to the Cape, in December last, still works well. Our client, in a letter just to hand, writes:—"You will be pleased to hear that the little Engine is still working beautifully; it is certainly a vast improvement on the hand power." Faithfully yours,

BURGOYNE, BURBIDGES, CYRIAX & FARRIES.

To Mr. N. G. Wilcocks, Engineer, Bath. *pro* J. W. J. B.

Emmanuel Street, Cambridge, May, 1880.

Dear Sir,—We have been using your "Eclipse" Filling Machine this week. We find that it can fill the bottles very well.—Yours faithfully,

Mr. Wilcocks, Bath. I. LAMBERT.

Anerley Road, Norwood, S.E., London, April 16th, 1881.

Dear Sir,—I have now had your Machinery in use for over six months, and as far as I can judge from workmanship is equal to the London makers, and at least 20 per cent. less in cost. I shall be pleased to show my plant to anyone you like to refer to me. Yours faithfully,

Mr. N. G. Wilcocks, Bath. J. G. PREBBLE, Chemist.

By Appointment.—W. E. STOKES, Chemist, Brompton, Kent, Established 1812. April, 1881.

"Eclipse" Soda Filling Machine to hand, have tried it in two or three different Patent Bottles, and appears to answer admirably well.

Bell Street, off Pole Street.

From James Lund's Aërated and Mineral Water Manufactory.

Dear Sir,—I have the pleasure to inform you that the Boiler, Engine and Soda Water Machinery, &c., I got from you give me every satisfaction, it works excellently and turns out first-class Aërated and Mineral Waters.

To Mr. N. G. Wilcocks, Yours truly,

Soda Water Machinist, Bath. JAMES LUND.

SPECIAL REPORT

(August 3rd, 1881), on the

INTERNATIONAL MEDICAL AND SANITARY EXHIBITION,

SOUTH KENSINGTON,

ON

PHARMACEUTICAL PREPARATIONS, DRUGS, &c.

BY THE

MEDICAL PRESS & CIRCULAR.

BURROUGHS, WELLCOME & CO., Manufacturing Chemists, of 7 Snow Hill, London.—This is one of the most extensive and interesting collections in the whole Exhibition: it consists of many new and practical improvements in medicine and pharmacy.

This firm represents the principal drug houses of America, and in introducing their "latest improvements in pharmacy" to the profession, have adopted a line of practice not hitherto followed by English firms—viz., that of presenting examples of new preparations to practitioners who desire to test them, and by not advertising in any but medical and pharmaceutical journals. The exhibits of this firm comprise—

Hazeline, the active principle of Witch Hazel (*Hamamelis Virginica*), is a valuable astringent remedy, wonderfully efficacious in checking internal or external hæmorrhages, and for allaying inflammation; it is particularly valuable in the treatment of bleeding piles, and as a surgical dressing, it deserves attention.

The *Burroughs' Beef and Iron Wine* is a very valuable nourishing tonic, especially desirable for delicate patients who cannot retain ordinary foods; its flavour has been greatly improved, and is very agreeable.

The *Burroughs Inhaler* is an ingenious and convenient device for inhaling chloride of ammonia fumes; by its use the chloride of ammonium is brought in more intimate contact with the mucous surfaces of the passages of the nose and throat than by any other form of inhaler.

The following houses are also represented:—

JOHN WYETH & BROS., Philadelphia.—*Wyeth's Compressed Hypodermic Tablets* are entirely new, and are now shown for the first time. Each little tablet contains as a vehicle quarter of a grain of sulphate of sodium, with morphia, atropia, and other alkaloids usually employed for hypodermic medication.

The use of sulph. soda is an advantage over other vehicles, as it promotes absorption without causing pain or irritation, and acts as a disintegrator, forming an almost instantaneous solution with three drops of water.

Wyeth's Compressed Tablets, Chlorate of Potash, Muriate of Ammonia, and various other drugs for throat affections. They are vastly superior to the ordinary sugar or paste lozenges, and on account of their very small size may be easily retained beneath the tongue while using the voice.

Dialysed Iron.—Wyeth's Iron has an established reputation, and is a thoroughly reliable preparation; it has steadily gained favour with the profession.

McKESSON & ROBBINS, New York.—*Capsuled (Ovoid) Pills.*—The ovoid shape is a positive advantage over the round form, as patients, even small children, take them easily after finding it impossible to swallow round pills, even if coated. These pills are completely and hermetically sealed by the continuous covering of gelatine, they do not have pin holes or other openings penetrating the covering, as we have noticed in some other pills. They are quickly soluble, and certainly the most important improvement yet made in the manufacture of pills.

KEPLER EXTRACT OF MALT CO., London.—The Kepler Malt is very delicious to the taste, and has been found by analysis to be exceedingly rich in diastase, and consequently is a valuable digestive agent. The Kepler Malt, combined with cod-liver oil, is the most palatable and easily digested of any form we have yet seen for administering cod-liver oil.

LAWTON & CO., Boston, U.S.A.—*Lawton's Absorbent Cotton* has been pronounced by some of our most eminent surgeons the very best absorbent for taking up discharges; it is very fine and soft, and acts instantly.

FELLOWS & CO., New York.—*Comp. Syrup of Hypophosphites* is a decided nerve tonic.

ALFRED BISHOP, London.—*Bishop's Granular Effervescent Citrate of Caffeine* is gaining favour as a remedy for headache.

SYMES & CO., Liverpool.—*Lac Bismuthi and Lac Bismuthi et Cerii.*—A desirable form for administering these valuable remedies.

MURRAY & LANMAN, New York.—*M. and L.'s Florida Water.*—This hygienic toilet water possesses decided antiseptic properties. When sprayed through the sick room it destroys offensive germs, purifies the atmosphere, and leaves a delicious and refreshing fragrance.

The *Lancet* says:—"The collection exhibited by Burroughs, Wellcome & Co., of 7 Snow Hill, London, is remarkable for originality and utility."

PHARMACEUTICAL APPARATUS FOR LABORATORY PURPOSES.

Exhibit of Professor Joseph P. Remington, Philadelphia.—*The Remington Pharmaceutical Still.*—Invented by Professor Remington, of the Philadelphia College of Pharmacy, being an improvement over any previous device, by its greatly increased condensing power and rapidity of action, together with its simplicity and adaptability for laboratory work. Capacity, from three gallons upwards.

Exhibit of the Enterprise Manufacturing Co., Philadelphia.—*The Enterprise Tincture Press.*—Constructed upon an entirely new principle. An "auger-shaped screw," operating in such a manner as to force a large bulk of mass, as fed into the press, into smaller and smaller space, until the refuse powder is rendered perfectly dry when delivered from the point of exit, while the liquid flows through a strainer underneath into a receptacle for it. Exhibited in operation.

Also the *Enterprise Drug Mill.*—Constructed on an improved principle, the cutters being easily removable for inspection or for cleaning. It may be regulated to grind to any degree of fineness or coarseness by simply turning a single thumbscrew. Is adapted to almost any dry pulverizable substance; it works rapidly and is economical. Professor Maisch, one of the highest American authorities on pharmacy, says that "it is the best drug mill that has yet been devised." It is intended to displace the use of the mortar for general purposes in pulverizing drugs. Exhibited in operation.

NEW NORMANDY HONEY, 1881.

In Jars, the Design of which is quite new, and which are suitable for the Table.

In one cwt. Original Casks, casks free, 104s. cwt., and in the New Jars, each containing 1 lb., 2 lb., 3 lb., and 4 lb., at 1s. 1d. lb., Jars included; and in some of the old style of Jars, holding ½ lb., price 1s. 1d. lb.

NEW ENGLISH HONEY, 1881.

This Season's Honey is just ready—the quality is very fine both as to colour and flavour.

The English Honey is also Potted in the New Style of Jars, containing 1 lb., 2 lb., and 3 lb. each, price 1s. 1d. per lb., Jars included.

THE LADIES' NEW SANITARY TOWEL

(PATENTED).

Through improved arrangements for Manufacturing the "Sanitary Towels," they are now offered in PORTABLE PACKETS OF ONE DOZEN

AT THE REDUCED PRICE OF 2s. PER DOZEN RETAIL.

This Price will bring them within the reach of all classes for general use.

Wholesale Price, 1s. 8d. per dozen to a/c.

SOUTHALL BROS. & BARCLAY, BIRMINGHAM.

DRAPER'S INK (DICHROIC)

THE NEW BLACK INK, different from anything else ever produced.

Writing becomes a pleasure when this Ink is used. It has been adopted by the principal Banks, Public Offices, and Railway Companies throughout Ireland.

It writes almost instantly full black.
Does not corrode Steel Pens.
Dries rapidly on the Paper.
Is cleanly to use, and not liable to blot.

Flows easily from the Pen.

Blotting-paper may be applied at the moment of writing.

In Jars, 6d., 1s., and 2s. each.

Can be obtained, in London, through Messrs. Barclay and Sons, Farringdon Street; W. Edwards & Son, 157 Queen Victoria Street, London, E.C.; F. Newbery and Son, Newgate Street; S. Maw, Son, and Thompson, Aldersgate Street; Jones and Co., 98 Southwark Street; Harvey, Shepherd & Co., Charterhouse Square, London; Wm. Mather, Manchester; Ayrton and Saunders, Duke Street, Liverpool; and Goodall, Backhouse & Co., Leeds.

BEWLEY & DRAPER, Limited, DUBLIN.

See "CHEMIST AND DRUGGIST," December 15th, 1874.

SAVORY & MOORE'S SPECIALITIES.

MEDICATED GELATINE.

A portable, elegant, and efficient vehicle for the Administration and Use of Important Medicines. Specially adapted to the requirements of Medical Practitioners in the Country and the Colonies.

The universal and increasing demand for this novel and effectual method of carrying, in the smallest possible compass, a supply of the most important medicaments to be found in the surgery has induced Messrs. Savory & Moore to effect a

REDUCTION IN THE PRICE OF GELATINE LAMELS FOR INTERNAL USE,

which are now sold in Sheets *of Twenty-four Lamels each* at 1s. 3d. per Sheet, Quinine and Emetia Lamels excepted.

Suspended in a little water, the Lamels are readily taken, and without the slightest taste.

A POCKET LETTER CASE will contain an ample supply (several hundred doses) of the Lamels of the most varied character and description.

DISCS FOR HYPODERMIC INJECTIONS.
Consist of small discs (SQUARE) impregnated with a definite proportion of alkaloids, &c.
Issued in Tubes of 25 Discs, price 2s. 6d.

DISCS FOR OPHTHALMIC USE.
Comprise minute (ROUND) discs impregnated with a definite proportion of alkaloids, &c.
Issued in Tubes of 100 Discs, price 2s. 6d.

BLISTERING GELATINE, OR LAMELLÆ CANTHARIDIS.
The most elegant, efficacious, and convenient mode of Blistering.
Tins, 1s. 3d.

N.B.—Samples of Lamels, and a List of the whole series of Medicated Gelatine Preparations, post free on application.

THE BEST FOOD FOR INFANTS.

USED IN THE ROYAL NURSERIES.

The ONLY FOOD specially prepared FOR INFANTS.

THE MOST PERFECT SUBSTITUTE FOR HEALTHY MOTHER'S MILK.

A combination, the result of the latest physiological improvements upon Liebig's original formula. The granules of the Farina are thoroughly broken and cooked and always ready for conversion into food. It is also associated with *Fresh Malt Diastase* of known digestive activity, and other valuable nutrients in due proportions. This food is therefore really "self-digesting" in the infantile stomach and conveys nourishment for every part of the human frame.

Tins. 1s., 2s., 5s., and 10s

SAVORY & MOORE, 143 NEW BOND STREET, LONDON, W.

AND SOLD BY CHEMISTS EVERYWHERE. 3

THE CHEMIST AND DRUGGIST

COLONIAL BUILDINGS, 44A CANNON STREET, LONDON, E.C.

Published on the 15th of each Month.

Subscription, 10s. per year, payable in advance; commencing from any date.

Post free to every country in the world. Single Copies, 1s. each.

Post Office Orders to be made payable to EDWARD HALSE, at the General Post Office.

An index to the advertisements will be found on page 39.

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Mr. O. V. Morgan, one of proprietors of this journal, is at present travelling in the Australian colonies, and may be communicated with by addressing to the care of the Bank of New South Wales, Brisbane or Melbourne.

THE MONTH

On pages 408 to 419 will be found an extensive variety of information relating to pharmaceutical, medical, and scientific education, both in this country and the Colonies. This information answers a great many questions which are often asked us.

The British Pharmaceutical Conference held its sessions at York on the last two days of August, under the presidency of Mr. Reynolds, of Leeds. Over 130 visitors attended the meeting, making with the attendance from York itself 166, which was within 10 of the largest number on record. A full programme of good pharmaceutical papers was presented, all of which, with the discussions following them, we report in abstract, and on the day following the sessions an excursion to Ripon and Fountains Abbey wound up the event. Professor Attfield was elected president for the next Conference, which is to be held at Southampton.

Among the more definite facts attained by this Conference may be mentioned the acquirement of clearer knowledge concerning the chemistry of ginger, contributed by Mr. Thresh; the certainty of the existence of codeia and narceia in English poppy-heads, by Mr. Groves, who further ascertained, however, that the extraction of codeia from this source would not pay; a new process for estimating iodide of iron in solution, by Messrs. Naylor and Hooper; a quicker process for testing pepsin, by Mr. Benger; a simple copying-ink, by Professor Attfield; proof of the value of the potassium iodide test for nitrates in water, by Mr. Ekin; proof of the inferiority of Jamaica jalap, by Mr. Greenish; proof of the value of the ferric chloride test for salicylic acid in urine; discovery of a new alkaloid in cannabis indica and disproof of the alleged existence of nicotine therein, by Messrs. Siebold and Bradbury; a simple process for the production of pure hydrobromic acid, by Mr. Fletcher; indication of the pharmaceutical value of heavy paraffin oil, by Dr. Symes; an improved process for extracting atropin, and evidence of the superiority of the wild belladonna to the cultivated, and of the leaves to the root, by Mr. Gerrard; the process for crystallising ortho-phosphoric acid, by Mr. Cooper; and evidence of the proportion of gum in liquorice-juice, by Mr. Madsen. The other papers either confirmed previous reports or were in some degree indefinite.

We are able to present by the side of our report of the British Pharmaceutical Conference a similar account of the sessions of the American Pharmaceutical Association at Kansas, held a few days before our own. That report has been written expressly for this journal by one of the most eminent members of the Association, and appears in print here before any report of the proceedings has appeared in the pharmaceutical journals of the United States.

The most important Act of Parliament affecting chemists and druggists passed during the last session was the Veterinary Surgeons Act. This protects the title, but enables persons who have been in practice for five years to claim registration without examination. We give a summary of the Act on page 401.

A Petroleum Hawkers Act makes it legally possible to carry not more than 20 gallons of petroleum through the streets for the purpose of selling small quantities in vessels of approved safety.

The Trade Association have succeeded in a prosecution at Chester within the past few days, under the 17th section of the Pharmacy Act, but the defendant was only fined 10*s*., and costs refused.

The French delegates to the International Pharmaceutical Congress, who have published reports of the proceedings, seem unanimous in somewhat unfavourable criticism of it. Summaries of their comments will be found on page 399.

An excellent and very representative exhibition, mainly of temperance beverages, was open at the Agricultural Hall during the latter part of August. It brought forward, in most effective display, the numerous drinks now competing for public favour.

There was no meeting of the Pharmaceutical Council this month.

The stamp duty on patent medicines in the year ending March 31 last amounted to 139,762*l*. 18*s*. 10½*d*.

Corner for Students.

Conducted by Richard J. Moss, F.C.S.

Qualitative Analysis.

A MIXTURE of salts will form the subject of the next exercise in qualitative analysis. The mixture is to be submitted to a thorough systematic examination designed to detect its constituents and to demonstrate the absence of all other substances. Students are required to send a complete report of the analysis. A list is to be given of the metals and acid radicles detected, distinguishing those which may be regarded as accidental impurities.

Reports.

The subject of the last exercise was a mixture consisting of—

	Parts
$Cr_2(SO_4)_3 15H_2O$	2
$MnSO_4 5H_2O$	3
$FeSO_4 7H_2O$	3
$NiSO_4 7H_2O$	3
$K_2Al_2(SO_4)_4 24H_2O$	25

One hundred parts of this mixture contained—

Cr	0·88
Mn	1·90
Fe	1·68
Ni	1·75
K	5·70
Al	4·03
SO_4	39·45
H_2O	44·61
	100·00

It may be observed that water and sulphuric anhydride constituted 84 per cent. of the mixture, and that only about one-sixth of it consisted of metallic matter, nearly half of this being potassium. Students who thought the analysis difficult will, perhaps, find some consolation in the fact that they had comparatively small quantities of the metallic elements to deal with. In January and March we drew attention to the chief precautions to be observed in the separation and detection of the elements of the ammonium hydrate and sulphide group, and it is not necessary now to repeat our remarks. The chief failures this time were in the detection of manganese and chromium. Both of these metals are easily recognised, as they exhibit extremely delicate and characteristic reactions. The lower oxides of each are capable of being converted by fusion with alkaline carbonates and oxidising agents into higher oxides possessing the properties of acid radicles, and yielding compounds of such peculiarly intense colour that very minute quantities can be detected. So small a quantity of chromium as 1-10th of a milligramme contained in 10 c.c. of water in the form of potassium chromate imparts to the liquid a distinct yellow colour. It is difficult to realise the minuteness of such a quantity, but some notion of it may be formed when it is remembered that this quantity bears the same relation to one ounce that an inch does to 4½ miles. And yet a solution of this strength will give an unmistakable yellow precipitate with lead acetate. The quantity of chromium in the mixture which our correspondents had to examine was sufficient to give in the ordinary course of analysis a solution fully eighty times as strong, so that there was a liberal margin for waste. In the case of manganese a much more sensitive reaction can be utilised for its detection. By means of the sodium carbonate bead in the oxidising blowpipe-flame one can detect the 1-400th of a milligramme of manganese, a quantity which bears the same relation to an ounce that 1 inch does to 180 miles. It is not at all probable that failures arose in the interpretation of such sensitive reactions as these, unless, indeed, chromium was sought for by gas-light, when the yellow colour of its compounds might escape notice. It is in the separation of the metals that the errors arose, especially in the case of manganese. When ammonia in the presence of ammonium chloride is employed to separate manganese, &c., from iron, aluminium, and chromium, a difficulty arises on account of the necessity of having the iron in a high state of oxidation, and the manganese at the same time in a low state of oxidation. Moreover, if a complete separation be effected at first, exposure to the air is sufficient to spoil the result, as ammonic-manganous compounds in an ammoniacal solution are liable to oxidation, so that the whole of the manganese may thus be precipitated. One of the most trustworthy general methods of separation that can be employed is that depending on the use of barium carbonate; the reaction requires time, so that it is best to allow some hours to elapse before filtering; every precaution must, therefore, be taken to prevent oxidation, and for this purpose the operation must be performed in a tightly-corked flask or test-tube.

Prizes.

The First Prize for the best analysis has been awarded to J. F. Croshaw, 61 Lowgate, Hull.

The Second Prize has been awarded to F. H. Alcock, 7 Regent Street, Clifton, Bristol.

Marks Awarded for Analyses.

J. F. Croshaw (first prize)	90
F. H. Alcock (second prize)	88
Dolomite	84
Studiosus	80
Neptune	70
R. W. F.	50
R. W. H.	35
W. Miller	20
Sigma	15

To Correspondents.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as second prize.

*** All Communications should include the names and addresses of the writers.

Studiosus.—Nickel sulphide is slightly soluble in ammonium sulphide, hence part of the nickel might be removed if the reagent were used in considerable excess. Again, to separate nickel from iron, aluminium, and chromium by means of ammonia the latter must be added in abundance. If the precipitate is large, and the quantity of nickel relatively small, only a very partial separation can be effected in this way, owing to the chemico-adhesion between the precipitated hydrates. This difficulty is overcome by the use of barium carbonate instead of ammonia.

Neptune.—The greater part of the manganese probably remained with the precipitate containing iron, aluminium and chromium, in which case after fusion with sodium carbonate and potassium nitrate the mass would be of a green colour.

R. W. F.—The quantity of potassium present was so large that there ought to have been no difficulty in detecting it in the residue by the least sensitive of its reactions; the original substance gave the potassium colour in the Bunsen flame.

R. W. H.—You omit to mention the colour of the mass after fusion of the precipitate with sodium carbonate and nitrate. You state that the solution obtained by treating this mass with water was not yellow; it would be of interest to know whether the liquid was any other colour, or was it quite colourless.

W. Miller.—Your account of the analysis is far too imperfect to admit of our venturing to point out sources of error. You made very little out of the preliminary examination, nearly all the constituents could be detected in a few minutes by the simplest blowpipe tests; the metals which you failed to detect in the analysis in the wet way are those which would have been most easily found in the preliminary examination.

Sigma.—The solution to which you added ammonium sulphide to precipitate nickel and manganese must have been extremely dilute. It would have been much better and easier to employ one solution of the substance for the detection of the metals in the wet way. The main object is to separate the constituents so that they may be obtained free from other substances that would interfere with the special tests by which the individual metals are recognised. There is also a great advantage in having a constituent that is present in small quantity all contained in one solution: there is a better chance of getting enough of it to apply special tests to, than if a number of different solutions are prepared and separately examined. Of course when a mixture of salts can be separated by the use of solvents, there is something to be gained by the analysis of the different solutions, but in this case there was no advantage of that sort to be gained.

The British Pharmaceutical Conference.

THE eighteenth annual meeting of the British Pharmaceutical Conference was opened at York on Tuesday, August 30. The President, Mr. Richard Reynolds, F.C.S., Leeds, took the chair at 10.30 A.M., at which time about a hundred members were present.

Mr. R. Davison (York), on behalf of the local pharmacists, briefly addressed a few words of cordial greeting to the members of the Conference. He hoped that any failure in the lavishness of the hospitality that would be extended by the chemists of the city would be made up by its cordiality. He also named a few of the points of interest to be seen in York.

The names of delegates were called over by Mr. Benger.

The report of the Executive Committee was read by Mr. Carteighe and the treasurer's statement by Mr. Ekin.

The report noted the resignation of Dr. Senier as assistant secretary, and the appointment to the office of Mr. Philip Princep at a salary of 100*l.* per annum, plus expenses at the annual meetings. The Committee expressed their appreciation of Dr. Senier's services. The Committee had considered the desirability of continuing to receive advertisements in their Year-book, but had decided that, for financial reasons, such should still appear. Thirty-four new members had been elected in the year.

The financial statement showed an income of 709*l.* from subscriptions, 110*l.* from advertisements, 33*l.* from sales of Year-books, and about 7*l.* 5*s.* from dividends; a total of 859*l.* 16*s.* 1*d.* Against this the Year-book cost 640*l.*, grants 15*l.*, and salaries, postage, stationery, and general expenses brought up the expenditure to 847*l.* 13*s.* 8*d.* The Conference capital is 532*l.* 9*s.* 10*d.*

These were adopted on the motion of Mr. Sowray (York), seconded by Mr. Clark (Leicester).

The "Bell and Hills'" Gift of Books.

Mr. Carteighe stated that after correspondence with the local committee, a set of books to form a nucleus of a library had been selected, and had been purchased by the Conference for presentation to the York Chemists' Association. They were at present in the hands of the binders.

The President said he might say for the York chemists what they would perhaps scarcely care to say for themselves—that it was quite open to any member of the Conference to contribute other books to the library thus formed. He had himself brought a copy of "Pharmacographia" as his contribution.

Then followed the

PRESIDENT'S ADDRESS.

GENTLEMEN,—The question, "Why are we here to-day," is capable of a direct answer. The stone thrown into water sets in motion its circle of wavelets—a series of which the continuity is undoubted. So the British Pharmaceutical Conference meets in York to-day as a direct result of what happened in this ancient and honourable city 50 years ago. On the morning of September 27, 1831, the theatre of the Yorkshire Museum was filled by an assemblage which included many distinguished members of learned and scientific bodies in different parts of the United Kingdom, who were collected together in consequence of a general invitation to the friends of science, issued by the Yorkshire Philosophical Society. Three hundred and fifty-three tickets were applied for, and the meeting resulted in the formation of the British Association for the Advancement of Science. The leading object of the new organisation was tersely defined:—"To give a stronger impulse and more systematic direction to scientific inquiry." Many who are now present will be likely to hear from some authorised mouthpiece of the British Association the full story of its early hours in this fair cradle, and the press will doubtless record the same that all may read. I will not intrude on this general ground, but will call your attention to the circumstance that, even in this stage of its existence, the British Association had amongst its then limited number of active supporters a member of our own profession in pharmacy. The earliest sub-committee for the subject of chemistry consisted of Professor Cumming, Dr. John Dalton, Dr. Daubeny, Rev. W. V. Harcourt, Professor Johnston, Professor Turner, and Mr. William West. One of the few recommendations made by this committee was "that Mr. West be requested to pursue the experiments contemplated by him, into the combinations of gaseous bodies when passed through heated tubes." At this time William West was engaged in pharmacy at Leeds, and he was a very active member and one of the honorary secretaries of the Leeds Philosophical and Literary Society. I may be pardoned for saying here that it has happened to me to succeed him in both these relations of life. Mr. West was born in London, in 1793, and he was for some years engaged in the establishment of Messrs. Allen, Hanbury & Co., Plough Court, which he left in 1816 to settle in Leeds. He preserved well the traditions of the school in which he had been trained, and enjoyed an extensive reputation as a sound analytical chemist, ultimately relinquishing the commercial side of his calling for the professional one. For several years he was a Fellow of the Royal Society.

As an illustration of the tendency to excite new movements which belongs to each such step, the President of the meeting at York, Viscount Milton, gave the first place in his argument to the circumstance that "similar meetings have taken place on the Continent of Europe, which have been attended by the most beneficial effects." The report of the meeting of the new Association occupied but little space in the local newspapers of the period, which were then small weekly prints. In the next Annual Report of the Leeds Philosophical and Literary Society, the event is alluded to as follows:—"And as a parting subject of congratulation, the Council would call your attention to the British Association for the Advancement of Science, a society which was formed shortly before the commencement of our session, under the most favourable auspices, and which, from the facilities afforded by its constitution, will for all practical purposes unite the various local institutions into one vigorous and luxuriant whole,

> "Branching so broad along, that in the ground
> The bending twigs take root, and daughters grow
> About the mother tree."

These lines, adopted by Mr. West, have, for members of the British Pharmaceutical Conference, a savour of prophecy.

Let us glance at the state of pharmacy at this period. We may recollect that the coronation of King William IV. had just occurred, that Lord Brougham was the most prominent of public men in Yorkshire, and that the opening of the Liverpool and Manchester Railway had happened within a year.

The London Pharmacopœia of 1824 was then the guide for the chemists and druggists of England, and it is interesting to study in a tabular form a synoptic list of its preparations, comparing some of the groups with those corresponding to them in earlier and later pharmacopœias, and observing in what direction changes have been made

	P.L. 1639	P.L. 1677	P.L. 1788	P.L. 1824	P.L. 1836	B.P. 1867
Acids	—	—	6	8	11	22
Waters	—	—	9	10	23	13
Ointments and Cerates	52	28	22	24	33	34
Confections and Electuaries	24	18	13	11	11	8
Decoctions	—	—	10	15	23	14
Plasters	38	47	13	12	12	14
Extracts and Liquid Extracts	—	—	14	23	28	36
Infusions	—	—	4	18	24	28
Iron: preparations of	—	—	4	4	5	14
Honeys	—	—	3	3	2	2
Liniments	—	—	3	8	9	16
Liquors	—	—	12	14	16	37
Mercury: preparations of	—	—	11	9	12	8
Mixtures	—	—	3	9	12	11
Oils	—	—	23	18	15	30
Oxymels	—	—	4	2	2	2
Pills	36	30	6	9	15	20
Potassium: preparations of	—	—	8	9	11	14
Powders (compound)	—	—	19	12	10	13
Sodium: preparations of	—	—	3	5	5	11
Spirits	—	—	20	23	17	15
Syrups	—	—	15	14	14	17
Tinctures	—	—	36	40	48	65
Wines	—	—	6	7	6	10
Miscellaneous	—	—	—	—	—	—
			267	307	369	454

The table shows a small increase in the number of preparations included in the Pharmacopœia of 1824, as compared with its predecessor of 1788. If we take those which are readily thrown into groups, the comparison stands as 307 in 1824 against 267 in 1788. The increase occurred chiefly in the groups of decoctions (from 10 to 15); extracts (from 14 to 23), and especially infusions (from 4 to 18).

Our own generation would fix its attention chiefly on the remedies that were conspicuous for their absence, as quinine, morphia, and iodide and bromide of potassium. These were about to appear on the scene, for the London Pharmacopœia of 1836 contained disulphate of quinine, acetate and hydrochlorate of morphia, strychnia, veratria, iodide and bromide of potassium. Phillips states that the two latter salts were first used in medicine by Dr. Williams, of St. Thomas's Hospital, and he quotes the dose of bromide of potassium as from 3 to 10 grains.

Again referring to the table, let us fall back from 1788 to 1677, passing over the London Pharmacopœias of 1721 and 1746, which appeared in the interval. I will only trouble you by pointing out a few of the larger groups. Ointments, electuaries, and pills were more numerous than in the pharmacopœias of the eighteenth century, but the grand idea of 1677 seems to have been plasters. Our predecessors may be grouped somewhat after the fashion of the anthropologists, when they classify primitive men according to their weapons, as those of the stone, bronze, or the iron period. These seventeenth-century apothecaries, judged by their weapons, were emphatically men of plasters, for their pharmacopœia had 47 formulæ for these preparations. Nevertheless, this period was not one of utter darkness, though its light was but that of the dawn. The institution of the Royal Society in 1660 marked the commencement of a new epoch in the intellectual life of England. Its secretary, Hooke, made great improvements in the microscope and telescope; John Ray had already published a second edition of a flora of England, and had laid a foundation for the science of zoology; and, greatest of all, Newton was on the eve of announcing his new theory of the universe. In the department of medicine, Sydenham had shown how to conduct diagnosis by a careful observation of facts, and he had vastly improved the treatment of fever and some other diseases. The chemists were now contributing to medicine their quota of remedies having a mineral origin, of which antimony made the greatest noise in the world, although it was but a restoration of a remedy used a century before, and then discarded from the dangerous effects that attended its use.

The London Pharmacopœia of 1677 gives us a picture of the materia medica when Charles II. was king and defender of the faith. Polypharmacy flourished with a brave show. The doctrine that every herb was given to man for the purposes of either food or physic was here exemplified. Thirty or forty ingredients were thought necessary to some of the most trivial preparations. In the London Pharmacopœia of 1639 was a preparation named "Antidotvs magna Matthioli adversus venena et pestem," which contained 130 ingredients, some of them being compounds. In this edition we find the prototype of confectio sennæ, then called electuarium lenitivum, which contained seventeen ingredients. Its present form differs in but little beyond the excision of some of these components. In the London Pharmacopœia of 1677, the "catalogus simplicium" was a list of about fifteen hundred substances, of which it is almost incredible that more than two hundred were derived from animals. Since the physicians of the time of Charles II. used these things as their weapons in the combat with disease, we must conclude that their art had become more depraved than when exercised by the Saxon leech before the Norman conquest. Of that period we have an interesting record in the three volumes of Leechdoms, Wortcunnings, &c., of early England, edited by the Rev. Oswald Cockayne, M.A., and published under the direction of the Master of the Rolls (1864). The most important manuscript consulted is one with coloured drawings of the plants, now in the British Museum, and which must have been a really magnificent book until injured by fire in 1731. It contains an herbarium and a list of medicina de quadrupedibus. Evidence of the universal belief in wortcunning at this period is found in one of the proverbs of Alfred—

> No wort is waxen in wood or in field
> Which for ever may man's life uphold.

Certainly the idea of charms is interwoven with this fabric of early English medicine, and a potion might demand for due efficacy that the patient should drink it from a church-bell, or should repeat a cabalistic formula.

But, taking remedy against remedy, those used in the latter half of the seventeenth century were more disgusting than the leechcrafts of the eleventh century, because a perverted ingenuity had increased their number. If the one dead fly has always caused the ointment of the apothecary to send forth a stinking savour, how of this time, when the dead flies outweighed the ointment! So much for six centuries of the rule of tradition, and of

> Dropping buckets into empty wells
> And growing old in drawing nothing up.

Just a century ago, in 1782, Dr. W. Black could write of the state of things now described as belonging to a past age.* He says:—"In the last century, and in part of the present, the Pharmacopœia and shops, and too frequently the sick, were overloaded with syrups and distilled waters, simple and compound, with boles, conserves, and an ostentatious heap of compositions, loathsome or insignificant. The shops have, very properly, if I may be permitted a technical phrase, been purged of a considerable part of this trash. The imperial, heavenly, and alixipharmic waters, the exhilarating confections for the heart, the whets for genius, the pearl juleps, the clays, boles, dead earths, several of volatile acid spirits, and distilled oils, the bones and hoofs of some animals, Egyptian mummies, dead men's skulls powdered, and a farrago of such feculence, are all banished from the pharmacopœias."

Our generalisations from the table are simple. They are chiefly that reformed pharmacy was well established a hundred years ago, and that the number of preparations was at low-water mark in 1788, as a consequence of this policy of reform. Gray says, in 1823, "Formerly the list of drugs kept in the shops amounted to about two thousand, or full ten times as many as at present, and the preparations were equally numerous." From 1788, a constructive policy prevailed, and the preparations of the Pharmacopœia once more began to increase in number. In the edition of 1836 the same rule obtained, and the table indicates how much higher the tide had risen in 1867, when the British Pharmacopœia showed an increase of 70 per cent. in grouped preparations as compared with 1788. We see, then, the operation of a natural law in this steady increase in the number of preparations used in medicine. The circumstance that the older medicines do not fall into disuse is a matter for congratulation in the interests of patients. The fact is sufficient evidence of their tried and proved utility. The other fact that new remedies are being added to our Pharmacopœia is equally satisfactory. I do not forget our discussion at Swansea last year upon an interesting paper by Mr. Symes on "New and Unofficial Pharmaceutical Preparations," which very naturally elicited an expression of the difficulties felt by pharmacists when new remedies are prescribed without a clue to their standard of strength. The question of new remedies has at other times been discussed with what I must consider too much emphasis on its commercial bearings. The unprofitable result of dispensing new medicines not in regular demand has been made the subject of many complaints. That the discretion of each individual may put some check upon the degree of loss is evident, but it is both the duty and the interests of the pharmacist to co-operate with the physician in widening the resources of the healing art. Mr. Symes and also Professor Attfield pointed out that from the wide seed-plot of new remedies, the survival of the fittest added new weapons to our armoury; therefore, we are bound to give fair play to all during their period of probation. It is evident that any doubts as to the dose, strength, or the formula of a new medicine passing current under any particular title must affect its chances unfavourably. Whilst writing this a medical friend informs me of the perplexities that arise from the variations in character, such as acidity, of syrup of hypophosite of iron, as supplied from leading

* "An Historical Sketch of Medicine and Surgery," by W. Black, M.D., 1782, pp. 218. It is impossible to allude to the early history of pharmacy without acknowledging the obligation, of our body to Jacob Bell's "Historical Sketch of the Progress of Pharmacy in Great Britain," first published in 1842.

houses. I endorse cordially the expression of the want of some official action in Great Britain, similar to that taken in 1878 by the Pharmaceutical Society of Paris, in the matter of new remedies. For the convenience of our body generally I have no hesitation in saying that the "Year-book of Pharmacy" would be the most convenient place for such information to be published, an arrangement quite consistent with its being made public more frequently by the periodical press. The Society undertaking this labour would confer an obligation on pharmacy. But it is evident that no arrangement can obviate the necessity for individual vigilance in such matters. Let us be thankful if our minds are kept fresh by moving events rather than steeped in a condition of stagnation. For those who must read only whilst they run there is an admirable *résumé* of the results of observation, invention, and discovery in the article given by the Editor of the *Pharmaceutical Journal* under the title of "The Month." On this subject of the introduction of new remedies let us give a moment's consideration to the reasons for expecting numerous additions to the Materia Medica. The chief reason must be the rapid progress of organic chemistry, of which every step in advance opens up new possibilities in therapeutics. We will once more place side by side the conditions of a period near 1831 and those of 1881, this time in relation to the progress of organic chemistry. The venerated first President of the Pharmaceutical Society, William Allen, F.R.S., was for many years one of the lecturers on chemistry at Guy's Hospital. Here is the text-book used then: it belonged to my own father when a student there in 1819, and it consists of two parts: first, Inorganic Chemistry, occupying 126 pages; and, second, Organic Chemistry, occupying 10 pages.

I compare this, not with the latest work on the subject, but, for convenience, with Gmelin's "Handbook of Chemistry," completed several years since. In this work the inorganic section occupies 2,500 pages, a multiple of 20 upon the Guy's text-book. But organic chemistry occupies 6,000 pages, a multiple of 600.

We may put this fact before our minds by the process which Mr. Galton calls "mental imagery." Abstracting ourselves, we will think of the map of Great Britain, and that upon its southern coast the Roman invaders have established themselves and have commenced the operation of road-making, this being the great civilising influence upon barbarous countries. One single mile of road is made, and that represents the extent of knowledge of organic chemistry 60 years ago. Now, since 60 years have multiplied that knowledge by 600, our road has been carried to John o' Groat's in Scotland. Manifestly any art largely dependent upon organic chemistry must experience constant increments as a consequence of the vast extension of the science.

It is impossible to refer to pharmacopœias at such length as has now been done without putting forward once more the just claims of pharmacists to hold a position of official responsibility in their construction. We know how important was the aid given by Professor Redwood to the medical committee charged with the preparation of the British Pharmacopœia, but it is due to our calling and to ourselves that we should offer to the State more direct and formal service.

As you already know, the International Pharmaceutical Congress, held in London this month, devoted itself very earnestly to the subject of the equalisation for all countries alike of the strength of the more potent pharmaceutical preparations. I had the honour of attending the Congress as your representative, and of joining in the deputation to Section 15 of the International Medical Congress. The decision of both bodies was to the same effect, viz., that from each country represented there should be two physicians and two pharmacists elected, to form a commission for the purpose just named. This consensus of opinion between the departments of medicine and pharmacy, in their international representation, justifies the expectation that British pharmacists will, in future, be recognised as fellow-workers with physicians in the construction of the State Pharmacopœia. The golden opportunity and the wisdom to use it should be now the only essentials to the achievement of this most desirable object.

We have spoken of the pharmaceutical preparations in use 50 years since. It is not without interest to notice the change in the money value of some drugs that has occurred during this period. Some old stock-books, for the years between 1827 and 1831, have supplied the cost prices which were then current.

The following may be quoted:—

	s.	d.		
Citric acid	18s. to 10	6	per lb.	
Oxalic acid	2	6	„	
Tartaric acid	2	9	„	
Camphor	2	10	„	
Calomel	4	3	„	
Calumba root	5	0	„	
Gentian root	1	0	„	
Castor oil	3s. (1827) to 1	8	„	(1831)
Cantharides	10	0	„	
Powdered nux vomica	4	0	„	
Chian turpentine	4	8	„	
Sarsaparilla, cut	5	0	„	
Ergot of rye	3	0	per oz.	
Seidlitz powders	sell 4	6	per box	
White demy paper	20	0	per ream	
Draught phials	18	0	per gross	
Flint glass	2	0	per lb.	

About this time Gray wrote of ergot of rye: "It has lately been attempted to be introduced into regular practice in this country, but the difficulty of obtaining it impeded its becoming fashionable before it had palled upon the ear."*

The items concluding our list tell a story in political economy that may not be familiar to our younger members. The taxes on knowledge had not been removed in 1831, and paper came in for a heavy excise impost. Flint glass was also the subject of a crushing excise duty, until Sir Robert Peel swept away that and some hundreds of other checks on the industrial arts.

Patent medicines did not occupy so large a place in stock-books as they have done in the second half of the enlightened nineteenth century. The names of a few of the proprietary medicines of our own day flourished then, but from the stock-books that have come under my observation, it would seem that four-fifths of the quack medicines patronised by the last generation have now fallen into disuse.

Gentlemen, he who undertakes the task of reviewing the past must recall events that will revive recent sorrow. Since we last met, our ranks have lost some of our foremost men. In the early years of this century, when a condition of foreign war was unhappily chronic to our country, it was the practice on receiving news of an engagement, first to toll the bells for those by whose death it had been won, before they were rung in honour of the victory. So we will proceed no further until having paid our tribute to the memories of John Abraham, Henry C. Baildon, and John Mackay. They were of the men who are the very salt of their profession. How well many of us remember the manly presence of John Abraham, of Liverpool, and the many-sided activity of his mind, serving pharmacy by various offices performed for our national or local associations, and finding time for multifarious engagements in the promotion of philanthropic, political, municipal, and scientific objects! His independence of mind might lead him to conclusions which were not always those of the majority, but all recognised in him the thinker and worker, who acted up to his high standard of a blameless life. Upon Edinburgh the blow fell heavily in the removal at a brief interval of two such citizens as Henry C. Baildon and John Mackay. Mr. Baildon was the eldest of the three of whom we now speak, and carried on business for the long period of 50 years. When this Conference visited Edinburgh in 1871 Mr. Baildon was President of the North British Branch of the Pharmaceutical Society, having been elected in order to do honour to the occasion. How well he fulfilled these expectations is reported by all who took part in the meeting of that year. His quiet disposition and thoughtful mind found recreation in the direction of invention. He introduced a most ingenious and beautiful method of "nature printing," for ferns and other plants, and secured patents for important improvements in relation to bankers' drafts. The name of John Mackay is that of a representative man, a leader, not of a district only, but of all the influence that pharmacy commands in Scotland. Of this influence, and it

* "Elements of Pharmacy," 1823, p. 279.

is not small, Mr. Mackay was for many years the animating and guiding spirit. He combined several qualities of character which gave him this commanding power; his business capacity and habits were unsurpassed; his insight amongst specious and complicated questions was of the clearest; and he had a gift of earnest speech which made his opinion tell in the weightiest manner. It has been truly said "that he possessed a full share of the *perfervidum ingenium* of the true Scot, yet was always the refined and courteous gentleman."

These have joined the majority, having used well their opportunities for serving their generation, and the Conference will preserve their memories, as it does those of Henry Deane, Daniel Hanbury, and William Walter Stoddart.

From a consideration of the past, let us turn to the things of to-day. The present time tinges our thoughts and feelings, often unduly, and the condition of pharmacists may be described at this moment as being chilled by clouds. "Who will show us any good?" is a query upon many lips. We have involuntarily applied to ourselves the lines of "Hudibras":—

> Some have been cudgelled till they know
> What wood the cudgel's of by the blow:
> Some have been kicked till they know whether
> A shoe's of neat's or Spanish leather.

And when this condition became intolerable, we felt what Dr. Johnson described when he said "that even if he were certain to be acquitted, a man would not care to be tried for his life once a week." Fortunately, there were practical men amongst us who determined that if one guardian did not suffice to protect the exercise of our lawful avocations, then we should be safe on both the right hand and the left, a condition which some other citizens of a part of the United Kingdom have adopted more ostentatiously.

The result of our action in 1876 is best described in the words of the last annual report of the Chemists and Druggists' Trade Association of Great Britain. The Executive refer to a prosecution under the Sale of Food and Drugs Act, which was successfully defended, and add, "This is the only case under the Act which the Association has been called upon to defend during the past year, and your Committee congratulates the trade on the significant fact that prosecutions against chemists and druggists for the sale of adulterated drugs are becoming year by year more rare. It will be within the recollection of the members that before the Association came into existence such prosecutions were of very frequent occurrence." This testimony to the good repute of chemists and druggists reminds me of one of the charming minor poems of George Eliot, who thus describes the Florentine drug merchant:—

> He kept an honest fame,
> And had the virtue not to try and sell
> Drugs that had none.

If the object of medicine is to combat the attacks of disease and prolong the limit of human life, there is some satisfaction for everyone connected with this beneficent art in the grand fact brought out by the census of 1881, that 300,000 lives have been saved in 10 years that would have been lost had the death-rate continued at the figure of the previous decennial period. Therapeutics and preventive medicine, or sanitation, may claim to have contributed largely to so happy a result.

One of the most interesting of our unsolved problems is, How are future pharmacists to get their technical education? At a time when technical education has become a prominent national question in relation to the larger industries of the country, and there are some early signs of its being adopted by the State, we may be sure that our body cannot safely lag behind in the race. It seems to me that the last few years have done much to make our course clearer. The subject which must receive the largest share of attention from our students is undoubtedly that of chemistry, and it is matter for hearty congratulation that the facilities for high-class teaching in this subject have multiplied many times in the provinces within the last 10 years. Whilst acknowledging gratefully the services rendered by numerous teachers who conduct evening classes at mechanics' institutes and the like, I know that some of these would be among the first to say to young men that they cannot do justice to the science which is the foundation of their calling, if only devoting to it the fag-ends of days spent in toil. They would advise, as I do most earnestly, that all who can do it should avail themselves of the advanced instruction now provided in our chief towns, where laboratories are open the whole day. The centres of large population outside London already provided with these facilities are Edinburgh (the University and other laboratories), Glasgow (the University and Anderson's University), Manchester (Owens College), Birmingham (The Mason Science College), Leeds (the Yorkshire College), Newcastle-on-Tyne (the College of Physical Science), Bristol (University College), Nottingham (University College), and Sheffield (Firth College); whilst Liverpool will soon be ready with its liberally-endowed University College.

As bearing upon this subject let me call your attention to the attendance of candidates for the Preliminary examination at the various centres. An aggregate attendance of 3,621 candidates is recorded for Great Britain at 11 examinations. Now the 11 towns just named, with London, entered 1,995 of those candidates, being 55 per cent. of the whole. It is certain that a considerable proportion of this number reside so near the centres which they selected for their Preliminary examination that they could conveniently attend classes held in those towns. Shall we, the pharmacists of Great Britain, avail ourselves of these new facilities for giving to our students a training in chemistry, which shall be rich in its thoroughness and breadth? For one, I must emphatically raise my voice in favour of such a policy, in preference to looking to separate classes in chemistry, having a lower and narrower aim. What would be thought of the student having the opportunity of training in a university who declined it in order to expend the same sum of money on private tuition? Do we not know that higher education cannot be made self-supporting, but that endowments in one shape or another have to supplement the students' fees? Hence, in the laboratories of which we now speak, it is safe to estimate that for every 10*l.* paid in fees by a student, he receives instruction which has cost certainly not less than twice or thrice as much money. The teaching of such institutions will not present the bugbear of final examinations as its sole or even its principal object; and those who direct it will not advertise their score in a match against the fourteen of the Board of Examiners. But students entering such schools will have the stimulus belonging to a place of higher education, with intelligent associates pursuing the science for the sake of its other applications, with an *esprit de corps* not confined to their own year, but rich with traditions of names made famous in science. We have occasionally heard the theoretical objection to such a system of mixed teaching that it would divert from pharmacy some of our most promising young men. In the past, pharmacy has lost such, and chemistry has gained them. Shall I name a few? They were Scheele, Davy, Liebig, and Dumas. Does anyone regret their change of allegiance? We know how well the science of chemistry has paid back to pharmacy its obligations in this and every other direction. If we inquire what is the system of technical training for pharmacists adopted in Germany, we find that it includes attendance at the classes of the universities, in association with students pursuing the same subjects for other purposes. It is a happy omen for an improved system of education for our students in England that the Council of the Pharmaceutical Society should have unanimously recorded a general approval of the very able report presented by the Committee on Education. I trust that such evidence as I have now offered of the existence of many facilities available for our purpose will give some encouragement to those who have undertaken this laudable work, to bestow much labour in developing it upon such good foundations. One word on an aspect of this mixed education, which I conceive bears on a question that has previously been raised in this Conference. I allude to that of social disqualification. There are parts of England where the lines of society are so well marked out that "persons" following our calling are subjected to educational disqualifications as to the schools open to their sons and daughters; and in the Mecca of this deeper than religious faith it is said that men are blackballed at clubs because their ancestors of three genera-

tions back were connected with trade. It is needless to say that this select district is not in the North of England. Soon after the subject had been alluded to in the Conference, a prominent physician, whose writings are in high favour and whom I am privileged to call my friend, poured out the social sorrows of the medical profession, observing that doctors and their wives were "social pariahs." One could not but feel that this strained description should carry some balm to any previously wounded pharmaceutical soul, as proving that our affliction was only one of degree. The question of social lines is not exciting to most of us, but in relation to it I claim a great advantage in this association of our student class with other young men pursuing similar studies.

This is not the place to discuss at length practical questions of pharmaceutical politics. The award of the highest legal tribunal, virtually tearing up the Pharmacy Act of 1868, has thrown upon us the task of once more attempting legislation to avert the retrograde consequences of this decision. It might not unfittingly have been given with the preface once used by a cynical judge, who remarked, "I have not to deal with common sense, but with common law." The result impresses upon my mind one leading lesson, viz, what the lawyers term "the danger of sleeping upon your rights." The story might have been very different had the law-breakers been challenged at the outset, and thus deprived of the invaluable support of many years' possession of the disputed privilege. But our new task imposes new responsibilities, and the preliminary review of our forces should be made useful to estimate their reliability when called finally to action. Will you allow me to say that we want more discipline? When we have again reached the stage of launching a Bill to be laid before Parliament, all internal dissensions on its merits should cease, and especially should we place restraint upon any disposition to raise side issues. The next time we bring forward a Pharmacy Bill, will it be too much to claim that instead of searching for its shortcomings in all directions we should loyally support it as in 1868?

And now, gentlemen, my task is finished. How imperfectly it has been performed, I am but too conscious. You know that our environments are hard and practical, and not such as surround the favoured few described by Canon Farrer as "those to whom it is given to contemplate the bright countenance of truth in the mild and dewy air of delightful studies." And it has had the yet further difficulty of demanding a hasty survey of many things, when, to quote Basil Valentine's "Triumphant Chariot of Antimony," "the shortness of life makes it impossible for one man thoroughly to learn antimony, in which every day something of new is discovered." Our art has furnished this illustration to literature—it is the opening sentence of Professor Morley's "First Sketch of English Literature," and it may well stand as my closing word.

A vote of thanks to the President was moved by Mr. Hey (York), and seconded by Mr. Cooper (Harrogate). Mr. Commans (Bath) supported the motion by some remarks, in which he expressed the pleasure it gave him to see his old friend Mr. Reynolds occupying that position.

The President, in acknowledging the vote, said that his public duties generally had rather seemed to train him for secretarial than for presidential duties, and for the latter he believed there was no curriculum provided, or he should have availed himself of it.

The first paper was a

Report on the Essential Oil of Ginger.

By John C. Thresh, B.Sc., Pharmaceutical Chemist.

This was an investigation undertaken by the author, assisted by a grant from the Conference. Mr. Thresh prefaced his paper by apologising for the comparatively slight pharmaceutical interest which he had been able to introduce into his report.

Messrs. Wright, Layman, and Umney had prepared for him an ethereal extract from 1 cwt. of Jamaica ginger.

Distillation of this proved most tedious and unsatisfactory, yielding only about 12 fluid oz. of oil. His previous researches had led him to expect about 1·4 per cent. of volatile oil, and Hanbury and Flückiger state that Messrs. Schimmel, of Leipzic, obtain 2·2 per cent.

The product was too small for complete investigation, and, therefore, about a pint of the oil was obtained from Leipzic. The latter was of rather higher sp. gr., and differed in some other respects, which were pointed out.

Crude ginger oil is of pale-straw colour, with somewhat camphoraceous odour. The "foreign" oil was much more fragrant than the "English," but with both, when dissolved in a large proportion of dilute alcohol, the sweet, fragrant odour of Jamaica ginger was most pronounced. Taste aromatic, but not pungent. Consistency not near so limpid as essential oil usually, more nearly that of almond oil. Sparingly soluble in rectified spirit, but soluble in all proportions in ether, chloroform, benzol, carbon disulphide, and glacial acetic acid. The fresh oil forms with glacial acetic acid and rectified spirit clear solutions; but oil which has been kept for some time, when shaken with excess of either of these solvents, forms an opalescent mixture.

The author of the report detailed at considerable length the results of fractional distillation of both oils. His examination showed that essential oil of ginger is an exceedingly complex mixture of hydrocarbons and of their oxidation products.

The more volatile portion contains the odorous principle (most probably an oxygenated compound), and is most susceptible of oxidation. The soft, resinous, fragrant matter which gradually forms on the lid of a jar containing ground ginger is, doubtless, produced by oxidation of the oil, which, slowly volatilising at ordinary temperature, condenses on the lid.

Both the oils examined consist chiefly of a hydrocarbon, probably with formula $C_{15}H_{24}$, but the hydrocarbon of the "English" oil is isomeric with that of the "Foreign" oil, the former boiling at a higher temperature, and differing remarkably from the latter in its action on a ray of polarised light. Their compounds with hydrochloric acid appear to correspond.

Cymene is a constituent of the distilled oil, and most probably of the crude oils, unless, as has been suggested by Wright, some constituent of formula $C_{10}N_{16}O$ has by the action of the heat been decomposed, yielding water and cymene.

The portions boiling below 161° consist chiefly of a terpene, which probably, if further purified, would have been found to correspond with those of Tilden's * first group.

The crude oil also contains a little formic and acetic acids.

Notable quantities of aldehydes and ethereal salts are absent.

A dilute alcoholic solution of the ginger oil is a remarkably good flavouring agent, capable of imparting to a very considerable proportion of aqueous fluid the very pleasant aroma of Jamaica ginger.

The President, referring to a remark of Mr. Thresh's, that he had received a great many letters asking him further about the soluble essence of ginger, said that probably as so many others were interested in the subject, they should hear of further experiments in that direction from some present.

Professor Attfield said the Conference was to be congratulated on Mr. Thresh's admirable reports on the chemistry of ginger, which illustrated the value of the system of grants for aid in pharmaceutical research, which they were prepared to vote. He urged anyone who was willing to undertake an investigation of this sort not to hesitate to apply for a grant to pay for materials, as they had funds in hand for the purpose. He would like to ask whether Mr. Thresh had satisfied himself as to the unquestionable genuineness of the foreign oil. He knew that manufacturers generally felt honoured in being asked to supply materials for a scientific investigation, and he had no reason to suppose that in this case the oil supplied had been other than perfectly genuine, but as considerable difference had been found in the samples, it would be interesting to know whether the purity had been tested.

Mr. Thresh said he had every reason to believe that the oil was quite unadulterated. He had proved that it contained no alcohol and no turpentine. It was sold at about 50*s.* or 60*s.* per lb.

Mr. Groves said that he had found nothing better for a soluble essence than an essence made with weaker spirit. The highly-concentrated essences lost some of the fine flavour of ginger. He found he got a better flavour by using spirit in the proportion of 5½ rectified spirit, and 2½ water. It would mix with water, though not making a perfectly bright solution. It was, however, liked very much for making ginger-beer in some works with which he was connected.

Mr. Thresh recommended as a simple process of making an essence which would mix fairly with water to prepare it first with rectified spirit, then add to the percolate about half its weight of water, shake with silica, and afterwards to restore fully the aroma add a drop or two of the essential oil of ginger. In reply to a question from Mr. Shenstone as to the economy of thus getting the flavour, Mr. Thresh said the imported oil cost about 3*s.* per oz., but a very little went a long way. He had not succeeded in extracting the aromatic principle of the ginger.

Other questions asked were mostly answered in the report itself. In reply to Mr. Proctor, Mr. Thresh said probably the lemon odour which occurred in the preparation of gingerine could be accounted for by the presence of cymene, which he believed to be present. In reply to Mr. Cleaver, he said

* *Journ. Chem. Soc.*, clxxxii., 84.

the oil could not be prepared by distillation with spirit, because of the extreme volatility of the odorous and aromatic principles. In treating an essence with lime (to prepare the soluble essence), no doubt to some extent the odour is impaired, but the addition of a little of this oil would restore it.

Further Notes on Glyceleum.

By T. B. Groves, F.C.S.

The author referred to a paper read at the Conference meeting at Dundee on "Glyceleum, a proposed Basis for Ointments."

Sweet-almond cake was then suggested, but for outward application he said bitter-almond cake answered as well, and he also found it better to prevent irritation of the skin to use diluted glycerine. The basis he now recommends to be prepared as follows:—

Finely-powdered bitter almond cake	1½ oz.
Pure glycerine	3ij.
Water	3j.

Mix.

He finds that ½ oz. of this emulsion will combine with 1 fluid oz. of most oils by merely stirring them together in a mortar. Castor oil will not combine, and spirit of turpentine, paraffin oil, benzole, and such bodies are somewhat stubborn, but by using the spatula instead of the pestle they can be made to form glycelæa containing about two-thirds of their bulk of the respective oils.

He had thought that glycelæa might be stiffened by combining them with chemically inert powders, but he now finds that by their use the combination is at once broken up, and its constituents assume their original liquid form. This happens when such substances as prepared chalk or liquorice-powder are employed. Tannic acid and oxide of zinc act chemically as well as mechanically. Wood tar, carbolic acid, creasote, and Peruvian balsam can only be combined in limited proportions. If, however, balsam of Peru be made to part with its resin by warming olive oil and the balsam until separation takes place, olive oil *plus* cinnamein may be strained when cold, and then can be as readily combined with the emulsion as pure olive oil. Such a preparation would be found useful as an application to chapped hands for winter use.

Various specimens were exhibited.

Mr. Thresh asked if iodide of lead or iodide of cadmium would combine with this basis. A vehicle for the application of these was a desideratum, as with greasy bases they left a nasty stain. He had tried a soapy basis, but that decomposed.

Mr. Groves had not had experience with these.

Note on Poppy-heads.

By T. B. Groves, F.C.S.

The author had found codeia in poppy-heads in 1854. In 1865 he repeated his experiments on a larger scale, using 50 lbs. of poppy-heads. From these he obtained, of morphia, 75 grains; of narcotine, 36 grains; of codeia, 33 grains; of narceia, 23 grains—all crystallised and in fairly pure condition. These products were exhibited. The object of the experiments was to see if codeia, which, as compared with morphia, exists in the unripe poppy-capsule in considerable quantity, could be extracted therefrom in paying quantities. The conclusion was, however, it could not. At the same time Mr. Groves asked that in the next green circular of the Conference codeia and narceia might be added to the list of substances that had been detected in the poppy-capsule, a statement now appearing therein to the effect that only morphia, narcotine, and meconic acid had been found in them.

Mr. Young (Edinburgh), in reply to the President, said he had not made any experients with the poppies, but he remarked on the good colour of the samples shown.

Mr. Williams said the results were interesting, inasmuch as the proportions of the alkaloids reported were unusual.

Mr. Groves said that was the case. The morphia was in very small quantity as compared with the codeia and the narceia.

The Estimation of Iodide of Iron.

By William A. H. Naylor, F.C.S., and David Hooper.

The authors aimed to supply an accurate and easily-applied process for the quantitative determination of iodine in syrup or liquor containing iodide of iron. As an adaptation of existing methods they had come to the conclusion that potassium bichromate with sulphuric acid was the best agent for liberating the iodine, and they recommended that it should be estimated by dissolving in carbon bisulphide, and titrating by volumetric solution of sodium hyposulphite. The following is the process:—Into 100 c.c. stoppered pipette put 5 c.c. of the syrup to be examined, and add 10 c.c. each of a 10 per cent. solution of potassium bichromate and acid sulphuric 1-4. Pour in 20 c.c. carbon bisulphide and agitate; when the liquids are at rest run off the lower stratum into a flask, treat the liquid in the pipette with another 20 c.c. of carbon bisulphide, and proceed as before. Now titrate the mixed iodine solutions with v. s. sodium hyposulphite. The discharging of the delicate colour of the iodine solution affords a very accurate indication for reading the burette. The whole of the carbon bisulphide may be recovered by washing with water. The authors have, however, devised a process which they consider very preferable to the above both in expedition and accuracy. It is based upon the fact that certain iodine compounds form double salts with mercuric chloride, which remain in solution until an excess of the latter reagent is added, when mercuric iodide becomes precipitated. Taking advantage of this fact, M. Personne has devised a method for the volumetric estimation of iodide of potassium. Messrs. Naylor and Hooper thought that a similar reaction might be obtained from ferrous iodide, and on experimenting this was found to be the case. The mode of working consists simply in dropping from a burette a semi-decinormal solution of mercuric chloride (10 c.c. of which contain ·1355 gramme of the salt = ·253 gramme iodine) into a measured quantity of syrup in a flask, diluted with about ten times its quantity of water. A rotary motion must be communicated to the flask after each addition of the mercuric chloride; the end of the reaction is indicated by the appearance of a feeble precipitate which remains permanent and imparts a scarlet colour to the liquid. Experiments were described proving the accuracy of this method, and the authors also gave the results of their examination of 12 samples of syrup of iodide of iron obtained from houses of repute in London and the provinces. It was found that the samples contained from 2·7 to 4·1 grains of iodide of iron per fluid drachm.

Mr. Stanford was asked by the President for some remarks, but said he had had no experience with iodides in syrups. He should have supposed that the sugar would have interfered somewhat with the reaction, but the results obtained seemed to show that the test proposed was very accurate.

Professor Attfield spoke from experience of the reliability of Personne's test for the estimation of iodide of potassium.

Mr. Groves thought Mr. Naylor's test had been suggested before. He believed a similar process would be found recommended in the *Pharmaceutical Journal*, some 10, 12, or perhaps 15 years ago.

Mr. Fletcher asked if Mr. Naylor had obtained his results from syrups freshly made, or from some which had been kept a fortnight or longer. Mr. Parker had shown in a recent paper read before the Pharmaceutical Society that on keeping the syrup the iodine seemed to mysteriously disappear. The compilers of the Pharmacopœia evidently relied on the specific gravity of the syrup as a test, and this would be valuable if the syrup were not so prone to change. But as the syrup develops hydriodic acid, the cane-sugar becomes partially converted into grape sugar, and as the latter crystallises out, the specific gravity is consequently lowered. Had Mr. Naylor found the presence of hydriodic acid interfere with his process?

Mr. Naylor said he had found that syrup prepared according to the Pharmacopœia process did lose a considerable quantity of iodine after a fortnight or later. He had not tried the colour test (which had been suggested as a simple one by Mr. M. W. Williams), and did not think it would prove very delicate. They all knew what different results were obtained by different experimenters with a colour test. He was not aware that the test suggested had ever been reported on previously.

On the Proximate Principles of Henbane.

By E. Merck, Darmstadt.

This paper had been sent in compliance with the request of the President, who had informed the author that in England the physiological action of crystallised hyoscyamin has not been found to correspond with that of extractiform hyoscyamin, leading to the belief that the latter contains more than one potent principle. Professor Ladenburg, in continuing his researches on the mydriatic alkaloids of the Solanaceæ has proved the existence of a second alkaloid in *Hyoscyamus niger*, which he calls "hyoscin." Holm and Reichardt have already applied that name to the decomposition product obtained by the action of barium hydrate upon hyoscyamin, but their product, Mr. Merck says, is identical with tropin.

Atropin and hyoscyamin split up into tropic acid and tropin, hyoscin yields, as decomposition products, tropic acid and pseudotropin.

The following synoptical account of the three mydriatic alkaloids, and of their origin, according to the new views, may serve to render their relations clearer:—

1. *Atropin* occurs—
   (*a*) In *Atropa Belladonna* (*Atropin verum*, or "heavy atropin").
   (*b*) In *Datura Stramonium* (*Daturin verum*, or "heavy daturin").

2. *Hyoscyamin* is found—
   (*a*) In *Hyoscyamus niger*.
   (*b*) In *Atropa Belladonna* (so-called "light atropin").
   (*c*) In *Datura Stramonium* ("light daturin").
   (*d*) In *Duboisia myoporoides* (so-called "duboisin").

3. *Hyoscin.*—As yet only found in *Hyoscyamus niger*. Hyoscin dilates the pupil like atropin, to which alkaloid, indeed, it bears considerable resemblance in physiological action; but Professor Edelfsen, of Kiel, considers that in certain cases it exercises a more constant and surer action than atropin, and possesses a soothing and soporific influence. He has obtained beneficial results with it in the treatment of whooping cough, asthma, and epilepsy.

The PRESIDENT said he had asked Mr. Merck to send this information, as he was, no doubt, the highest authority on the subject. Hyoscyamin had been referred to last year in a paper by Mr. Greenish. It had been used here in the treatment of the insane. A sample had been sent.

Mr. MASON asked if the alkaloid was obtained from the first or second year's plant.

The PRESIDENT said that was not stated. At Swansea last year he believed it was considered probable that it was obtained from the first year's plant.

Mr. CLEAVER said that, though the Pharmacopœia ordered the biennial, he believed the experience of most manufacturers was that they obtained more hyoscyamin from the annual plant.

On the Pharmacopœia Test for Pepsin.

By F. Baden Benger, F.C.S.

The author considers that the British Pharmacopœia process for testing pepsin is unnecessarily tedious, and not sufficiently definite. According to the British Pharmacopœia 2 grains of pepsin in 1 fluid ounce distilled water, with 5 minims of hydrochloric acid, should dissolve 100 grains of hard-boiled white of egg at 98° Fahr. Mr. Benger recommends that the test should be made at a temperature of 130° Fahr., when the action of the pepsin is much more rapid, and he also states that the coagulated albumen is more readily dissolved if in a state of fine division. He therefore recommends that it should be passed through wire gauze composed of No. 32 Birmingham wire gauge brass or copper wire, and containing 36 meshes to the linear inch = 1,296 to the square inch, which is as fine as can be conveniently used, and answers admirably.

The degree of acidity he recommends is 1 per cent. by volume of strong hydrochloric acid, equal to about 0·3 per cent. of HCl.

By following this process Mr. Benger says comparative tests of pepsin can be made in test-tubes 6 by 1 inches in a water-bath, the mixture being frequently stirred. Two grains of an active pepsin under these conditions will dissolve 100 grains of hard-boiled white of egg in about 20 minutes, while the British Pharmacopœia process occupies 4 hours.

The PRESIDENT said that Mr. Benger's paper would certainly command the cordial thanks of the Conference. By his preparations of pepsin he had, during the past year or two, aided considerably in the relief of suffering, and he had now been good enough to contribute from his experience this practical paper.

Professor ATTFIELD could quite confirm the statement that pepsin acts more powerfully at a temperature of 120° to 130° than at about 100°. At the same time it must be remembered that it has to do its work at about 98° or 100°, and it was desirable to know whether its proportional activity was constant. He thought Mr. Benger's proposal to divide the albumen was a very good one.

Dr. SYMES also spoke to a similar effect. He had found it difficult to bring the albumen to a uniform state of division except with a sieve, and then he had found a certain drying takes place, which seemed to interfere with the action of the pepsin. He remarked also that if more albumen were added towards the end of the process it would still go on dissolving, so that the question of the conditions seemed indefinite.

Mr. W. WILLIAMS considered that the pepsin ought to be divided as well as the albumen. Also if the conditions of the human stomach were to be observed so exactly, it was a question whether they ought not to adopt lactic acid instead of hydrochloric acid.

Mr. CLEAVER said that Mr. Benger had not given any details of the comparative values of different pepsins. Was he able to state the comparative activity of certain liquid pepsin preparations which were said to be prepared with no artificial heat?

Mr. BENGER said he had frequently repeated his experiments at the two temperatures, and had always found the relations perfectly constant. It was as Mr. Symes had stated, that if an excess of albumen were present much more would be dissolved; but he thought more accurate estimation was obtained by experimenting on a definite quantity. Of course he had experimented on various kinds of pepsins, and had found, as always had been found, that some were good, some bad, and some medium. It had always appeared to him that the active part of the pepsin sufficiently diffused itself in the mixture. He had found hydrochloric acid the preferable one to use.

Mr. W. WILLIAMS said hydrochloric acid had itself a tendency to form peptones.

Mr. BENGER said not with white of egg. He had not discovered any difference whether the albumen were fresh or dried.

Dr. SYMES said that was rather contrary to his experience. He had found a difference of 30 per cent.

Copying Ink for readily transcribing Letters without a Press.

By Professor Attfield, F.R.S., &c.

The author stated that he had for the past 13 years used an ink which he copied into an ordinary thin-paper copying-book with no more effort than is employed in using a piece of blotting-paper, that is by simply pressing with the hand. This ready transcription is accomplished by using ink which dries slowly. The ink will of course be affected as to its drying by the weather, the absorbency of the paper on which it is written, by the thickness of the strokes, and so on; but practically the writer provides for these difficulties. Professor Attfield himself uses the ink from year's end to year's end without any trouble whatever. A firm of manufacturers had some time ago gone to the expense of provisionally patenting it in the hope that before the period of provisional protection elapsed it would be improved sufficiently to render it an ordinary commercial article. They had abandoned that hope, and so had the author. He now, however, offered the mode of making it to others for their own use, and possibly for druggists' sale. The principle of the method consists in dissolving a moderately powerful hygroscopic substance in any ordinary ink. After experimenting on various substances glycerine was found preferable. Reduce, by evaporation, ten volumes of ink to six; then add four volumes of glycerine. Or manufacture some ink of nearly double strength and add to any quantity of it nearly an equal volume of glycerine.

The PRESIDENT said those who correspond with Professor Attfield would now understand why his letters have such a pale appearance. A part of what he writes to his friends he takes back again in his copying-book.

In reply to a question, Professor ATTFIELD said that the process answered as well with coloured as with black inks.

Mr. GERRARD, having mentioned eosine as a good basis for a red ink, Mr. Ekin said it was a good colour, but was fugitive.

Mr. NAYLOR asked if glycerine was not generally a constituent of copying inks.

Professor ATTFIELD said he had found a little glycerine in some copying inks, but sugar was more generally contained in them.

Note on Tests for Nitrites in Potable Water.

By Charles Ekin, F.C.S.

Griess and Warrington have recently directed attention to metaphenylene-diamine and naphthylamine as extremely delicate tests for the detection of nitrous acid. The former gives a distinct reaction in a solution of 1 part of nitrogen as nitrous acid in 1,000,000 parts of water, and the naphthylamine test will detect with ease 1 part in 100,000,000, and with care as little as 1 part in 1,000,000,000.

The author had, however, compared with these the old-fashioned potassium iodide and starch test, and found that a solution in water of 1 part per 1,000,000 of nitrogen as nitrous acid gives instantly a blue colour which rapidly darkens to a blue-black. One part in 10,000,000 gives a distinct blue in a few minutes, which gradually deepens. One part in 100,000,000 gives a distinct blue in 12 hours, and one part in 1,000,000,000 in 48 hours, and by allowing the solution to stand some days it is possible to detect even smaller quantities than this. An experiment was made by the author which showed a colour in the weaker solution.

Mr. Ekin considers that the importance of the estimation of nitrites is not sufficiently realised. The Rivers' Pollution Commissioners gave in their analyses the amount of nitrogen as nitrates and nitrites, but gave no separate estimation of nitrites; and the Society of Public Analysts in their instructions as to water analysis omit nitrites from their schedule altogether.

Now, nitrates and ammonia are found both in good and bad waters; but nitrous acid is formed during the process of nitrification, whilst the fermentation is going on, and is evidence of the presence in a water of fresh decomposing sewage.

Mr. Ekin has never known a well or spring water containing nitrites that was not unfit for drinking purposes, and no water known to be unpolluted has ever yielded a trace of nitrites. He would not, however, advocate reliance on one item of evidence only.

Those remarks applied specially to well and spring waters. Some believe that under the influence of vegetation the nitrates present in river water may be partially reduced to nitrites, but his own experiments were contrary to that opinion. But rain-water will sometimes contain enough nitrous acid to give a reaction with even the metaphenylene-diamine test.

Mr. W. Williams commented on this paper at some length, his remarks going to prove, what Mr. Ekin had stated, that the presence of nitrites indicate recent sewage contamination.

Mr. J. Williams said that the iodide of potassium was liable to give erroneous results in consequence of the difficulty of getting an absolutely pure salt. Hydrochloric acid, too, almost always contained some free chlorine, which would also liberate the iodine.

Mr. Ekin said he used acetic, not hydrochloric, acid.

Mr. Siebold pointed out that Mr. Ekin had said that he had in all cases made blank experiments along with his other experiments and these not having given the colour reaction, it was proved that the liberation of the iodine was due to nitrous and not to iodic acid.

Mr. Groves asked if the presence of iron in the ferric state would not be likely to cause liberation of the iodine and the production of the colour.

Professor Attfield agreed with Mr. Ekin's opinion as to the importance of nitrites in spring water, and he also believed the starch test was as good as any of the new colour tests. He had not, however, made any quantitative analyses with it, and he thanked Mr. Ekin for his valuable contribution. As a rule, he believed the presence of nitrites did indicate recent sewage contamination, but he had met with deep well-water, in which there was no trace of organic matter, but which contained nitrites. As an illustration of the possible sources of nitrous acid, he remembered that Mr. Deane had shown that some infusion of senna, on being acidified, gave off nitrous acid fumes as a consequence of the presence of nitrate of potash in senna.

Mr. A. C. Abraham mentioned that the water of Edinburgh, which was obtained from the chalk, and contained no organic matter, yet did contain nitrites.

Mr. Ekin replied to the comments which had been made, and remarked that Mr. Groves' suggestion that ferric salts might interfere with the test was important. Mr. Groves had a troublesome way of putting his finger on the weak part of a process.

Note on the Solubility of Carbonic Anhydride in Certain Aromatic Waters.

By C. H. Bothamley.

The author had undertaken a series of experiments to prove whether the generally received view is correct that carbonic anhydride is more soluble in peppermint water than in pure water. Pure, dry carbonic anhydride was passed for several hours into a measured quantity of the water contained in a large test-tube. The test-tube was placed in a large beaker full of water, the temperature of which was kept constant at 17·5° C. After saturating with the gas the latter was measured by testing with ammoniacal calcium chloride solution.

The results obtained were as follows:—

	Sp. Gr.	Vols. CO_2 Dissolved
Distilled water	1·0000	94·19
Peppermint water (from English oil, without distillation)	1·0061	94·77
Dill water (distilled from seeds)	1·0000	97·57
Cinnamon water (distilled from bark) ..	1·0002	101·48

Showing that carbonic anhydride is slightly, but only slightly, more soluble in the three aromatic waters taken than in pure water. Whether the differences are greater under high pressures had not been determined.

Another experiment was to dissolve hydrochloric acid in distilled water and aromatic water respectively, and add an excess of sodium bicarbonate to each solution. The gas evolved was measured, and it was found that aromatic waters gave off more gas than did distilled water, as shown by the following table:—

	Gas given off
5 c.c. HCl + 15 c.c. distilled water	78·40 c.c.
,, + 15 c.c. peppermint water	83·15 c.c.
,, + 15 c.c. dill water	79·98 c.c.
,, + 15 c.c. cinnamon water	80·52 c.c.

Similar results were obtained when citric acid was used instead of hydrochloric acid. In all cases when the acid is mixed with an aromatic water and sodium bicarbonate is added, the evolution of gas is less tumultuous than when distilled water is used, and this fact has probably led to the supposition that a greater quantity of the gas is retained by the aromatic water. The experiments just described show that this is not really the case.

The President said this paper was especially interesting to him as coming from one of the schools he had referred to in his address. He remarked on the precautions which had been observed by the author in his experiments.

Mr. Siebold expressed surprise at the results obtained. As a pharmacist in Germany he had never doubted the greater solubility of carbonic acid in peppermint than in distilled water, and he believed that view was universally taken. It was a question often asked in examinations. Perhaps the experiment would have resulted differently if the peppermint water had been distilled as in Germany. He should repeat the experiments himself to see if he had really been all his life under an illusion.

Mr. Abraham asked if precautions had been taken to expel all the air from the waters before passing the gas into them.

Mr. Ekin was about to ask the same question. Soda-water makers well knew that water from which air had been expelled would dissolve much more carbonic acid.

Mr. Conroy could not understand why the specific gravity of peppermint water should be higher than that of water. Cinnamon water should be, as that oil was heavier than water.

Dr. Symes said if the peppermint water was not made by distillation be supposed it was prepared by agitation, and not by the old process of rubbing the oil down with magnesia. If so it would probably contain a large quantity of air.

Mr. Bothamley had not taken any means to eliminate the air, but had passed the gas into the waters under exactly similar conditions for several hours. He thought the specific gravity of peppermint water must have been greater than that of distilled water as he had taken it several times. In reply to Professor Attfield, Mr. Bothamley said he could only account for the less tumultuous evolution of gas in aromatic waters by supposing that there was a greater surface-tension.

Notes on Oxide of Zinc.

By R. F. Reynolds.

The author (a son of the President) had examined two samples of oxide of zinc for sulphuric acid. In No. 1 (Hubbuck's) he found no trace, but in No. 2 (X.X.) he found sulphuric acid equivalent to 2·455 per cent. of anhydrous zinc sulphate ($ZnSO_4$).

The makers of the latter sample alleged that it was prepared by the combustion of the metal.

The author had also made experiments to test the possibility of making a pure oxide of zinc by precipitation. He referred to contributions of Professor Redwood and Mr. Stoddart on this subject, and thus described his own experiments:—

First.—100 grammes of crystallised zinc sulphate were dissolved in 300 c.c. of water, and 110 grammes of crystallised carbonate of sodium dissolved in 300 c.c. of water. The zinc solution was slowly filtered into the solution of sodium carbonate, which was kept boiling and well stirred. After washing the precipitate to remove the alkali the zinc carbonate was converted into zinc oxide by heat, and gave distinct evidence of the presence of sulphuric acid.

A second experiment, but using 50 grammes of crystallised zinc sulphate dissolved in 600 c.c. of water, and 200 grammes of crystallised carbonate of sodium dissolved in 400 c.c. of water, was carried out in the same way, and then the zinc carbonate yielded much smaller traces of sulphuric acid than in the previous case.

The use of a large excess of carbonate of sodium evidently produces a marked effect in the completeness of the decomposition. The author believes that by the use of a relatively large quantity of alkali and the employment of a filter-press, a practically pure product could doubtless be obtained.

The President said it would be interesting to hear any opinions as to the source of the large proportion of sulphate present in the second sample examined.

Mr. Bothamley suggested the possibility of the sulphates being derived from sulphur in the coals employed for the combustion.

Mr. J. Williams thought the proportion was too great to be accounted for in that way.

Mr. Conroy asked if the impure sample was an ordinary commercial article. He had examined a good many specimens but had not found any so impure as was described, but he added there was plenty of oxide of zinc in the market quite equal to Hubbuck's.

Mr. Siebold said that it was very desirable that more attention should be given to the character of the chemicals in general use. Many were very impure. Chemists had cultivated organic chemistry rather to the neglect of inorganic chemistry. He hoped many would follow the example of Mr. Reynolds.

Note on Sulphate of Beberia.

By D. B. Dott.

This paper was read by the Secretary, Mr. Princep. The author had intended to have given an analysis of the so-called sulphate of beberia, but had not been able to complete all the requisite experi-

ments. He, however, thought it might be of interest to send a general description of the Pharmacopœia preparation, especially as statements of a misleading tendency have at various times been published regarding the same.

The commercial sulphate of beberia is not a definite salt, but a purified extract of greenheart bark. It contains about 15 per cent. of water, and 7·80 per cent. of SO_3, which is combined with other alkaloids as well as with beberia. Probably these other alkaloids contribute to the value of the preparation as a tonic, and the author doubts whether a much better preparation of the bark could be obtained than the Pharmacopœia "sulphate," but thinks it would be advisable to alter the name, which does not indicate the real nature of the substance, the expression "sulphate of beberia" properly applying to a compound of definite chemical composition.

Mr. Brady asked if Mr. Dott suggested a preferable name, but the author not being present there was no reply.

Mr. Proctor's Paper on Pharmaceutical Remuneration.

Before adjourning for the day the President offered an explanation of the absence from the programme of the paper on Pharmaceutical Remuneration, by Mr. B. S. Proctor, of Newcastle, which it had been stated in the *Pharmaceutical Journal* would be read at this Conference. They all knew how well Mr. Proctor writes, and the editor of the *Pharmaceutical Journal* had alluded to the paper as likely to be one of especial interest. But when the Executive Committee met on the previous evening, which was their first opportunity of considering the papers sent in, they could not, in view of the discussion which would be sure to follow such a paper, conscientiously recommend that the subject should be introduced at the Conference. He did not know whether the Committee would be fortunate enough to give general satisfaction in this matter, but he might say that their opinion was unanimous. Perhaps Mr. Proctor would like to say a few words.

Mr. Proctor did not think he need add anything. He had been asked to write a paper for the Conference, and the subject he had chosen was the only one on which he was then prepared to write.

Note on some Samples of Jamaica-grown Jalap.

By Thomas Greenish, F.C.S.

Mr. D. Morris, Director of the Botanical Gardens, Jamaica, had recently sent to the Museum of the Pharmaceutical Society samples of the jalap cultivated in that island. One sample consisted of small tubers dried whole, and of this Mr. Morris says that "in order to dry these in this state they were obliged to select the smaller tubers only." The other sample consisted of slices only of larger tubers dried artificially.

Mr. Morris was anxious to obtain some idea of the commercial value of the drug in the London market, and more especially of the sliced tubers. He finds it impossible to dry the tubers whole or gashed without artificial heat, and naturally this adds to the expense of the cultivation. They could, however, cure the sliced tubers without artificial heat and save nearly 2*d.* per lb. The jalap tubers lose over 70 per cent. in drying, so that it requires nearly 1,800 lbs. of green tubers to yield 500 lbs. of marketable jalap.

Mr. Greenish's examination of the jalap gave as a result that of resin, calculated on the jalap in the state in which it was received, the tubers contained 7·55 per cent., the slices 8·17 per cent. It would appear, therefore, that Jamaica-grown jalap yields considerably less resin than the average of good Mexican jalap (12 to 18 per cent.). The minimum amount of resin in a jalap intended for pharmaceutical purposes is generally admitted to be 10 per cent. The samples approach more nearly that grown by Mr. Smith, Botanic Gardens, Trinity College, Dublin, which yielded 9·2 to 11·97 per cent. of resin.

Prof. Tichborne said that he had performed the experiments for Dr. W. Smith on the jalap grown in the Dublin Botanic Gardens to which Mr. Greenish had referred. It was, perhaps, not generally known that jalap could be grown with success in this country. Dr. Smith had grown it in the Botanic Gardens, of Dublin, and they found that the larger the tubers the less resin they obtained. The large tubers yielded an average of 9 per cent., the small ones an average of 11 per cent. Their specimens were, therefore, better than those from Jamaica. The Irish-grown jalap had never been introduced into commerce, but had been grown only as a scientific experiment. The point he wished to bring forward was that large tubers were a mistake.

Mr. Conroy had also found that the large tubers of Mexican jalap were inferior to the small ones.

Mr. Young said that lately his firm had received a commission from a house in Calcutta to buy some jalap, and had been instructed to pick out the larger tubers. He did not know on what grounds their correspondents preferred such.

Mr. J. Williams asked if there was any evidence as to the relative activity of the resins of jalap. Whether the resin of Irish-grown jalap was as active, for instance, as Mexican.

Professor Tichborne could not say.

Dr. Symes said jalap was an instance of a plant which seemed to lose some portion of its medicinal activity by cultivation. Looking at the sample, he should have thought that it had been dried slowly.

Mr. Greenish afterwards said that he had said in his paper that such was the case.

Mr. Brady, invited by the President to speak on the subject, said he had no experience of the cultivation of jalap, but he made some remarks on the cultivation of ipecacuanha and vanilla.

Mr. Groves, remarking on the sample, said he thought some of the dark part which was taken for resin was probably some starch which had been converted into dextrine, as he had observed in the roots of aconite.

Mr. Greenish, in reply, said that Professor Tichborne's experience as to the inferiority of the larger tubers did not accord with his experiments on these specimens. He mentioned that the late Mr. Hanbury had sent a jalap plant to Jamaica in 1862, and these samples were the result.

The Detection of Salicylic Acid in Urine in Ordinary and Special Cases.

By Louis Siebold and T. Bradbury.

Salicylic Acid is usually detected in urine by the direct application of the well-known reaction with ferric chloride. The first few drops of the reagent generally cause a precipitation of ferric phosphate; but on the addition of a moderate excess of the test solution, the purple-violet coloration due to the formation of ferric salicylate comes out distinctly. The authors did not find the modifications of this test, which had been suggested by various chemists, to remove the phosphates and the colouring matter, advantageous. Only in the case of very highly coloured urines, and in urines containing so minute a trace of salicylic acid as to require concentration by evaporation, does the removal of colouring matter, phosphates, &c., afford any decided advantage. In such cases they recommend the following process by which the introduction of acetates and of mineral or other free acids is avoided:—

Mix the urine to be tested with a few drops of solution of potassium carbonate to render it slightly alkaline, then add strong solution of lead nitrate in excess, shake well, filter, return the filtrate to the filter until it passes through quite clear, and now test the clear liquid with a few drops of a very weak solution of ferric chloride

Diabetic urine occasionally contains a body forming a dark-red coloration with ferric chloride. Some chemists believe this to be acetone, and others consider it to be the so-called aceto-acetic ether (ethyl-diacetic acid). The authors feel convinced that the body in question is not acetone; but they do not discuss that question. They explain how the disturbing influence of its colour reaction with ferric chloride on the test for salicylic acid may be overcome. If diabetic urine containing this substance is acidified with a few drops of hydrochloric acid, then shaken with an equal volume of pure ether, the ether decanted and allowed to evaporate in a dish without heat, and the dish, after the complete volatilisation of the ether, left for some hours in an exsiccator over sulpburic acid, and finally heated on a water-bath for about 15 minutes, the residue, if any, when treated with a small quantity of water and a drop of weak ferric chloride solution, will not produce any coloration, provided that salicylic acid was absent. But in the presence of this acid the usual violet coloration will be instantly developed.

The authors recorded experiments which showed that salicylic acid externally applied in the form of an ointment is absorbed, and can be detected in the urine in less than twelve hours after the application.

Professor Tichborne mentioned that it had been stated that in certain diseases carbolic acid or some compound that would produce a similar reaction was formed in the urine and might affect the test.

Professor Attfield believed that the reason for the slight disfavour into which the ferric chloride test had fallen was only due to the difficulty which the authors had referred to in respect of diabetic urine. The alternative process now suggested seemed to remove that difficulty.

Mr. Gerrard said that an article had recently appeared in the *Practitioner*, by North, showing the chemical processes which salicylic acid goes through in the body.

Mr. Siebold, replying to the remarks that had been made, said that in the course of a long experience he had never found any difficulty with the ferric chloride test. Only the so-called acetone could interfere with it, and he believed they had shown how that difficulty could be overcome.

Note on the Alleged Presence of Nicotine in Indian Hemp.

By Louis Siebold and T. Bradbury.

In 1876 Dr. Preobraschensky announced that he had isolated from Indian hemp a volatile alkaloid identical with nicotine. Professor Dragendorff and Dr. Marquiss subsequently questioned the correctness of this observation, and suggested that probably the hemp examined by Dr. Preobaschensky might have accidentally contained an admixture of tobacco or of some other herb containing a volatile base. The authors had proposed to ascertain which view was correct. By the process they adopted they found they could detect nicotine in a mixture of ½ drachm of tobacco to 8 oz. of the hemp. Then they tried the process on Indian hemp without any admixture of tobacco. They placed 10 lbs. of Indian hemp in a still with water rendered powerfully alkaline by caustic soda, and heated by steam until fully one-half of the water had passed over. The distillate was neutralised with oxalic acid and slowly evaporated to perfect dryness at a temperature not exceeding 70° C. The dry and pulverised residue was treated four times with anhydrous ether, the ether rejected, the powder again dried, and then extracted with alcohol in order to separate any oxalate of nicotine from the ammonium oxalate. The filtered alcoholic solution was evaporated, the residue dissolved in water, filtered, shaken with ether, and the ether rejected. After being rendered strongly alkaline by caustic soda the solution was again shaken several times with ether. The united ethereal solutions were filtered and allowed to evaporate at an ordinary temperature. There remained a small quantity of a thick, oily, yellowish liquid, which, after being left in an exsiccator over sulphuric acid for four hours, dried up to a transparent varnish. The substance thus obtained had a strong, peculiar, somewhat mice-like odour. The authors considered it rather like conine than nicotine, but it was less nauseous than the former. They found strong evidence that it was an alkaloid, but it differed from both nicotine and conine in not being a liquid; from nicotine in particular by its markedly different odour, its very slight solubility in water, and the reaction of its aqueous solution with chlorine water; from conine by its reaction with platinum perchloride, and its odour.

They had obtained only about 2 grains, and mentioned that their process was not originally intended for the discovery of an alkaloid, but for ascertaining the presence or absence of nicotine. They intend to continue their investigations. Meanwhile they propose for this volatile alkaloid the provisional name "cannabinine."

Messrs. Evans, Sons & Co., of Liverpool, had liberally supplied the material for this research.

The President reminded the Conference that a new alkaloid was not discovered every day. He trusted that one of the objects of the Conference would be brought to bear on the proposed investigation. Their funds were quite large enough to admit of a grant for the purpose.

Mr. Martindale asked if any physiological tests had been made. The physiological action of nicotine was so marked that it was as sure as the chemical proof.

Mr. Groves said the authors had evidently proved the absence of nicotine, but he was not so sure that they had proved the presence of a new alkaloid. He thought the substance might possibly have been produced by the action of the strong alkali on some constituent of the Indian hemp. He would suggest the employment of lime or magnesia.

Mr. Thresh said that if any methylated spirit were employed in such investigations misleading results might be obtained. It was of the utmost importance that no methylated spirit should be used for investigations of this kind unless it were first purified.

Mr. Conroy would not recommend any chemist to attempt the purification of methylated spirit. It was strickly forbidden by the Excise.

Mr. Abraham had noticed in making the extract of Indian hemp a very striking odour, which, if not due to nicotine, was at least similar to it.

Mr. Siebold said the odour was due to the volatile oil. He had often met with it. They had not used either methylated alcohol or methylated ether in their experiments, and had been careful to test the purity of all the agents used by them. They had had no opportunity of testing the alkaloid physiologically. He had no doubt his process was a wasteful one for obtaining the alkaloid, and that more could be got by other means; but their object had been simply to discover whether nicotine was present. With regard to the objection of Mr. Groves that the substance might have been formed by the alkali he was not prepared with any proof against that theory, but it must be remembered that caustic soda was used by all chemists for the isolation of alkaloids, and he could hardly think it likely that such a result should occur; but it was possible, and the suggestion should have their careful attention.

Commercial Specimens of Hydrobromic Acid.

By J. C. Thresh and R. Wright.

The observations in this paper were very similar to those recorded in the paper by Mr. Gilmour, published in the last number of The Chemist and Druggist (page 339). It will be recollected that Mr. Gilmour pointed out that, in preparing hydrobromic acid by Wade's or Fothergill's process, *i.e.*, by decomposition of bromide of potassium by tartaric acid, he showed that only 52 or 57 per cent. respectively of the theoretical proportion of bitartrate of potassium was thrown down. Wade has stated that 3ss. hydrobromic acid prepared by his formula contains only about 1·6 gr. bitartrate. Mr. Gilmour, estimating from the quantity precipitated, said it would contain about 5½ grs. Messrs. Thresh & Wright, however, quoting Wade's statement, add:—Possibly only this quantity of acid tartrate does remain in solution; but, and this is of far greater importance, the acid thus prepared is not what it is supposed to be, containing only from one-third to one-half the theoretical quantity of hydrobromic acid, and considerable amounts of tartaric acid and potassium bromide.

That the fluid is a solution of bitartrate of potash in hydrobromic acid, as has been suggested, is negatived by the fact that, upon evaporation, crystals of both acid and bromide crystallise out.

The authors had also tested eight samples of acid found in commerce, of which four were evidently made by distillation, and four by Wade's or Fothergill's process. The former contained from 8 to 10 per cent. of hydrobromic acid; three of the latter were evidently intended for 5 per cent. solutions, but only contained about 2 per cent.; whilst the fourth was labelled 5 per cent., and, although containing less than that amount, was evidently intended for a 10 per cent. solution.

The acid made by action of tartaric acid on potassium bromide is undoubtedly a most unsatisfactory preparation, and should be discarded by pharmacists. It is easily recognised by adding to it, drop by drop, a little liquor potassæ, and shaking. The fluid remains clear at first; then, as more alkali is added, abundance of cream of tartar suddenly precipitates.

This preparation was named as an instance of those for which it would be desirable that some committee should fix a uniform strength.

Hydrobromic Acid.

By Frederick W. Fletcher, F.C.S.

This paper was read immediately after the last, before any discussion was taken. The author traced the history of the preparation, and commented on some of the processes suggested in a rather humorous manner.

The author considered that Dr. Fothergill's formula had been somewhat unfairly criticised.

As regards the insufficiency of the tartaric acid to decompose all the bromide, Mr. Fletcher remarked that Fothergill directs the use of 6·337 grains of tartaric acid for the decomposition of 5·188 grains of bromide of potassium, instead of 6·540 grains, a deficiency of only a little over 3 per cent.; and when it is remembered that the purpose is to secure all the bromine, and to get rid of as much tartrate as possible, the error, if any, would appear to be on the right side.

Nor did Mr. Fletcher agree with Mr. Gilmour, in his able and interesting paper, that it is possible that Dr. Fothergill may have intended to prepare an acid half the strength of Dr. Wade's, and blundered in his calculations, or that there may have been some confusion between the terms "bromine strength" and "bromide strength," &c. Fourteen years ago it was not the custom to prescribe the bromides in such prodigious doses as are now fashionable. And as the acid was believed to possess an activity from four to eight times greater than the alkaline bromides, a strength corresponding to 8 grains of the potassium salt in the fluid drachm did not seem so very ridiculous.

Having pointed out the confusion arising from the existence of three formulas, Wade's (16 per cent. strength), Fothergill's (8 per cent.), and Squibb's (34 per cent.), Mr. Fletcher proceeded to comment on the several processes.

That of Wade and Fothergill, viz., the decomposition of bromide of potassium by tartaric acid as a manufacturing process, from a

chemical and economic point of view, is almost the worst that could have been devised. It was probably, however, only intended as a ready means by which the pharmaeist could prepare the acid in small quantities. The process is bad chemically for the reason that it is based on the assumptiou that when atomic proportions of bromide of potassium aud tartaric acid are brought together in aqueous solution, hydrobromic acid will be formed, and acid tartrate of potassium precipitated, the amount of the latter remaiuing in solution being assumed to be only such as would be contained in an equal volume of distilled water. As a matter of fact, quite a different thing happens. Acid tartrate of potassium is itself decomposed by hydrobromic acid, with the formation of potassium bromide and tartaric acid, as had been pointed out by Mr. A. N. Palmer, iu a letter to the *Pharmaceutical Journal* of April 17, 1877.

For practical purposes, the physician might almost as well prescribe a mechanical mixture of bromide of potassium and tartaric acid, leaving the stomach to effect the chemical decomposition. On the ground of economy, too, the process stands condemned. The tartaric acid, itself an expensive substance, is wasted, and bromide of potassium is an unnecessarily extravagant source from which to obtain bromine.

Markoe's process, to add bromine to phosphorus aud decompose PBr_5 by water into HBr and H_3PO_4, is not only expensive, but dangerous. The operator might easily find some cheaper means of shatteriug both his limbs and his laboratory.

Dr. Squibb's process of decomposiug a solution of bromide of potassium with sulphuric aeid, and distilling the liquid after the potassium sulphate has crystallised out, is the best of the many which have been advocated. It has been selected by the revisers of the U.S. Pharmacopœia, and is recommended by Mr. Gilmour in his recent paper in THE CHEMIST AND DRUGGIST. In the manufacture of the acid the author had for some time used it with very satisfactory results, but had now abandoned it on account of the time and expense involved.

Hager had suggested causing bromine to act upou a solution of hyposulphite of sodium, the disengaged gas being conducted into water. This might be a good method of preparing sulphurous acid when expense is no objeet, but it was not to be recommended for the manufacture of *hydrobromic* acid.

Champion and Pellet convey the vapour of bromine into melted paraffin, forming brominated paraffin, which, being heated to about 180° C., gives off the bromine as hydrobromic acid gas, which being absorbed by water yields a product of great density. On a large scale, and with special appliances, there is little doubt the process would be a successful one, but it is obviously not adapted to pharmaceutical requirements.

A somewhat similar method by Bruylants was also considered impracticable.

The process which the author, as a manufacturer, has adopted, and by which pharmacists can obtain a perfectly pure acid, by simple means and at a minimum of time and cost, is the passing a stream of sulphuretted hydrogen through bromine in the presence of water.

The following process would give about 14 lbs. of 34 per cent. acid. Into a flask of about 300 oz. capacity, place 120 fl. oz. of water and 5 lbs. of bromine. Connect the flask with the wash-bottle of a sulphuretted hydrogen generator, the delivery-tube of which reaches to the bottom of the flask and dips into the bromine. Pass a brisk current of H_2S through the apparatus for an hour, or until the bromine has entirely disappeared. This may be known to have taken place when, on agitating the liquid, no red colour is imparted to it. The flask will now contain a mixture of hydrobromic and sulphuric acids, free sulphur, and a small quantity of a dark fluid, which is a compound of bromine and sulphur, but which decomposes, on boiling with water, into sulphur and hydrobromic acid.

The entire contents are at once transferred to a retort connected with a Liebig's condenser and distilled.

The first and last portions of the distillate are not quite pure, but the bulk is fully saturated, fuming acid, with a sp. gr. of 1·500. This is diluted with water to 1·300. Mr. Fletcher agrees with Mr. Gilmour that Dr. Squibb's statement that an acid of 1·274 sp. gr. is not of 34 per cent. Mr. Fletcher showed a model apparatus, and said that the whole operation could be completed within an hour. The process is equally well adapted for the manufacture of 1 lb. or 1 cwt. of acid.

The PRESIDENT said that as the process generally adopted for the production of this acid had been proved to be so wasteful, it seemed that the time had come to revise it. No doubt it was convenient when it was first introduced to have a simple method by which pharmacists could themselves make the preparation, but hydrobromic acid had gone beyond that stage now, and Mr. Fletcher seemed to have established the superiority of the process which he had shown.

Mr. WELLCOME, referring to the alleged danger of Professor Markoe's process, said it might be remembered that an accident had occurred to Dr. Pile, of Philadelphia, in using that process, though Professor Markoe himself seemed to succeed with it. He was sure American pharmacists would appreciate a process yielding such uniform results.

Mr. CONROY said the process seemed very feasible and beautiful in every respect. He would like to know at what temperature it was found necessary to distil the acid. He thought it was important that the strength of the preparation should always be stated.

Mr. NAYLOR asked if there was any other advantage than that of price, in the process recommended by Mr. Fletcher, over that of obtaining the aeid by decomposing bromide of barium with sulphuric acid.

Mr. MARTINDALE believed that when medical men prescribed hydrobromic acid they generally intended Fothergill's preparation to be used, as that was the one to which they had been introduced. It was no doubt an impure article, and it was well that this should be made known. He had found that he could purify it by the employment of a freezing mixture.

Mr. PLOWMAN said his experience was that when physicians ordered hydrobromie acid they did not mean Fothergill's. Most of them were unaware that he had devised a formula. When asked which acid they intended they generally replied, "Oh, the usual thiug." That was an argument for a definite formula.

Mr. J. WILLIAMS said there was a certain amount of difficulty in preparing the acid by distillation. His idea was that the best method was a process by which the gas was condensed in distilled water. If monobromated camphor was now in use as it was a few years ago they would have been able to produce the acid as a bye-product cheaply.

Professor ARMSTRONG thought there could be no question among chemists that the best method of making the pure compound was to evolve the gas and dissolve it in water. There ought to be no difficulty and no danger in preparing the gas from bromine and phosphorus. He also referred to the action of bromine ou terpenes, and suggested the oil of orange as an excellent source.

Mr. WILLIAMS said they could not afford that.

Mr. THRESH had understood Mr. Palmer differently to what Mr. Fletcher had stated.

Mr. FLETCHER said they had been referring to different communications of Mr. Palmer's. In reply to Mr. Conroy, he said that he distilled by direct fire-heat. Hydrobromic acid is not so volatile as is generally supposed. As to the expense, which had been alluded to by Mr. Naylor, he said there could be no cheaper way than to get the acid direct from bromine. The salts of bromine were all manufactured, and were nearly the same price as the bromine itself. No doubt, as Mr. Williams had said, the solution of the gas in water would yield the best product on a large scale, and probably no better process than the production from brominated paraffin could be given. But his object had been, not to describe a process for manufacturing on a large scale, but one which any pharmacist could use. The process for manufacturing the gas by means of camphor would involve the loss of half the bromine and of all the camphor, unless the monobromide of camphor could be utilised.

NOTE ON GLYCERINUM ACIDI GALLICI.

By T. E. Thorpe, Ph.D., F.R.S.

DR. THORPE'S note was a repetition of a caution which he had previously published in the *Chemical News*, pointing out that, unless great care is taken to prevent over-heating, the gallic acid may be converted into pyrogallol. At a temperature of from 190° to 200° C. this conversion in presence of glycerol takes place very rapidly, the gallic acid being transformed into the theoretical quantity of pyrogallol; and he had recommended this process as a ready method of preparing pyrogallol for alkaline development in photography. Such a change would make the preparation highly poisonous.

The PRESIDENT said this paper illustrated the promotion of one art by another. Professor Thorpe had noticed this occurrence in the course of his researches in photography, and he was sure pharmaeists would be grateful to him for his caution.

Mr. SCHACHT asked whether Professor Thorpe had observed this change to take place only when a certain temperature was reached, or would the prolonged application of a lower degree of heat cause the decomposition?

Mr. MARTINDALE said the absence of pyrogallic acid could be shown by the experimeut of Mr. Gale, who had noticed that, if gallic acid be dissolved in glycerine as the Pharmacopœia directs, and water be added, the whole goes into a mass. If pyrogallic acid were present the solution would not be affected.

Professor ATTFIELD doubted whether any pharmacist was likely to employ such a temperature as was necessary to convert the gallic into pyrogallic acid, hut nevertheless the precaution was very useful.

Mr. BENGER mentioned that a correspondent of the *British Medical Journal* had recently pointed out that gallic acid was very soluble in a solution of citrate of potash. He had tried it and found it to be so.

Mr. CONROY mentioned a case he had known in which by the application of heat a considerable deposit of pyrogallic acid had taken place.

Mr. PLOWMAN had lately frequently dispensed the glycerinum acidi gallici, but there had been many complaints that it did not produce the effects of gallic acid as administered, rubbed down with water only. Evidently the gallic acid was in some way changed.

Professor TICHBORNE said he had tried the experiment of applying a temperature of 100° Fahr. to gallic acid for 3 or 4 days, and had found that a considerable quantity of pyrogallic acid was thus formed.

Professor THORPE had not experimented in that direction, but should have thought the change would not have occurred much below 212°. He had never observed the deposit spoken of, and should think it very problematical that so soluble a body as pyrogallic acid should give that deposit.

NOTE ON HEAVY PARAFFIN OIL.

By Charles Symes, Ph.D.

ATTENTION was drawn to the heavy or lubricating oil obtained from crude petroleum after the benzine and the burning oils in the process of distillation. This is of the colour and specific gravity of olive oil, and may be purified by passing through granulated animal charcoal.

It is an excellent emollient when applied to the skin, and might be used with advantage as a vehicle for many more active remedies. It dissolves half its weight of camphor, thus forming a strong camphorated oil, which keeps good indefinitely. Mixed with one-twentieth of its weight of carbolic acid, we have an excellent antiseptic dressing for wounds; it also dissolves thymol and menthol when gently warmed. Simple ointment, in which the almond oil is replaced by this oil, is an excellent basis for other ointments, as it does not readily become rancid, the paraffin oil not only resisting oxidation itself, but acting as a preservative of the lard present, as had been lately shown by Mr. J. B. Moore, of Philadelphia, in the *New York Druggists' Circular*.

Dr. Symes showed specimens of ointment made from this oil.

In the discussion which followed this paper Professors Armstrong and Thorp questioned a statement of the author's as to the optical activity of this oil, which they supposed must have been due to some impurity. Messrs. Allen, Gerrard, Fletcher, Abraham, and Conroy took part in the discussion, which had reference chiefly to the physical characteristics of the oil.

RESULTS OF EXPERIMENTS MADE UPON THE BARKS OF CINNAMON AND CASSIA, ALSO UPON THE OILS EXTRACTED THEREFROM.

By J. Woodland, F.L.S., F.C.S., &c.

OILS of cinnamon and cassia both take away the blue colour imparted by iodine to a decoction of starch, cinnamon to a much greater extent than cassia, but not in constant proportion, the amount of iodine absorbed being dependent upon the age of the sample in an inverse ratio.

The author had found that the quality of the barks, that is, the relative proportion of oil contained by them, could be judged by observing how much iodine was needed to impart coloration to decoctions of the barks, but the actual amount of oil cannot be indicated by this means. When the whole of the volatile oil was expelled from the bark he found that iodine was not absorbed, and, therefore, concluded that this power was due to the oil exclusively. He had found great difficulty in getting rid of the oil completely. Salt, litharge, and the various solvents did not completely rid the bark of the oil. It was accomplished by boiling the powdered bark for a considerable period with a strong brine, afterwards with a small percentage of slaked lime to convert the residue of the oil into cinnamate of calcium.

Other experiments had been performed, with a view of distinguishing between oils of cinnamon and cassia.

If nitric acid, sp. gr. 1·36, be added to oil of cinnamon (1 part of the latter to 2 of the former), and the mixture shaken, a bright orange-coloured liquid is first obtained, upon the surface of which floats an orange resinous substance, which, slowly becoming cherry-red, changes to a liquid in which spontaneous ebullition shortly occurs with the evolution of nitrous fumes and vapours of benzoic aldehyde; after ebullition has ceased, a *clear* amber liquid remains, with orange globules floating on the surface.

Upon oil of cassia nitric acid sp. gr. 1·36 has quite a different action, as, after mixing 1 part of oil of cassia with 2 of nitric acid, a dirty green supernatant resinous mass (slowly turning brown) is seen floating on a yellowish liquid, and no further change is undergone; a large excess of acid brings the cherry-red colour, but there is no spontaneous ebullition.

If oil of cassia be mixed with oil of cinnamon the reaction with nitric acid takes place as with oil of cinnamon, but more tardily, according to the amount of cassia oil present, and at the end of the process a *turbid* subnatant liquid is seen, instead of a clear one, as in the case with pure oil of cinnamon.

Spirit of nitrous ether can also be used to distinguish between these oils, as it forms a clear solution with that of cinnamon, but a turbid one with that of cassia.

Distinction can also be made between the powders of cinnamon and cassia, for, on shaking cinnamon powder with iodine water, a greenish-brown colour only is seen, whilst cassia powder treated similarly imparts a black colour. A better way, however, is to make a decoction of the powder, and, when cold, add tincture of iodine in excess, when, on shaking well in a test-tube, the froth of the cinnamon decoction is distinctly yellow, and that of cassia grey or black; and if cassia powder be mixed with cinnamon the characteristic froth of the cassia can be distinctly seen.

Professor ATTFIELD hoped Mr. Woodland would continue his experiments with a view to ascertain what were the special conditions under which plants absorb iodine.

Mr. BRADY said that the use of salt water in the preparation of oil of cinnamon was mentioned in Pereira, but he did not believe it was employed anywhere in Ceylon. Certainly it was not used in any factory which he visited there. Replying to Mr. Greenish, Mr. Brady went on to say that some 8 or 10 varieties of cinnamon were distinguished by the planters, but their characteristics were not distinguishable by other than experts. Oil of cinnamon was generally prepared by the more careless planters, men who will not take trouble to prepare fine cinnamon bark. It was a question which pays best. There was no separation of the varieties for the purpose of distillation.

AN IMPROVED PROCESS FOR THE EXTRACTION OF ATROPINE.

By A. W. Gerrard, F.C.S.

THE author explained the reasons for dissatisfaction with the process generally adopted. However carefully conducted, the atropine is never obtained well crystallised, but as a brown, waxy, ill-defined mass. He showed that ammonia is preferable to potash, as the latter causes colouring matters to become more soluble in chloroform or ether, and also produces a troublesome emulsion, slow to separate. The yield of alkaloid is greater when ammonia is employed.

The details of his new process are:—Pack 1,000 grammes of powdered belladonna leaf, or root in a percolator, and macerate 24 hours with 1,000 c.c. of 84 per cent. alcohol; add in parts of 250 c.c., at intervals of about four hours another 1,000 c.c. of alcohol; when percolation ceases displace with water, recover the alcohol by distillation and treat the extract with five times its volume of water; carefully separate the resin and fatty matter, and wash it twice, mixing all the washings; evaporate them to 300 c.c. and add a good excess of ammonia; expose in a shallow dish for some hours that excess of ammonia may volatilise; now shake well with an equal volume of ether, separate the ether and withdraw the atropine from it by shaking with a small volume of water and repeated additions of acetic acid. Working in this way the ether may be used continuously to extract the mother-liquor until it is exhausted. The acetic solution of atropine is now shaken with and filtered through a little animal charcoal, concentrated to a small volume, treated again with ammonia, and dissolved out a second time with ether. Allowing the ether to spontaneously evaporate, the atropine will separate in exceedingly fine filamentous crystals of a satiny lustre and almost white. Two more crystallisations will render them quite white.

In conducting this process it is important to remove the whole of the alcohol from the tincture, also to employ ether free from alcohol.

Mr. Gerrard also read a second paper—

ON THE ATROPINE VALUE OF CULTIVATED AND WILD BELLADONNA PLANTS.

HE had compared cultivated with wild belladonna, grown at Lastingham, near Pickering, Yorkshire, in a very poor limestone soil, where the plant reaches 6 feet in height. For its collection and selection he was indebted to Dr. Sydney Ringer. Probably its age was three or four years.

The cultivated plant was grown by the well-known firm of W. Ransom, of Hitchin, on a chalk subsoil, with 12 inches of stiff loam on the surface. The plants were 3 to 4 feet in height, and believed to be three years of age.

The plants were collected about the end of September. Mr. Ransom says they are considered less active then than during July, which is the month of flowering. Both were dried at 100° Fahr.,

and root, stem, leaf, and fruit powdered, and separately estimated for atropine, which came out as follows :—

Wild Plant		Cultivated Plant	
Part used	Per Cent. Yield of Atropine	Part used	Per Cent. Yield of Atropine
Root	·45	Root	·35
Stem	·11	Stem	·07
Leaf	·58	Leaf	·4
Fruit	·34	Fruit	·2

Mr. Gerrard added that Professor Tweedy had made some experiments with the atropine obtained from the wild and the cultivated plants, and found the former decidedly more physiologically active.

Mr. NAYLOR thougbt tbat in these percentages the differences might be errors of experiment.

Mr. ALLEN said that would depend on the qnantity that was worked upon. He could confirm Mr. Gerrard's observation that potasb makes tbe colouring matter more soluble in ether tban if ammonia were used.

Mr. PLOWMAN asked whether the percentages were calculated on the dried or tbe fresh plant.

Mr. GERRARN : On the dried plant.

Messrs. CLEAVER, SHENSTONE, and W. WILLIAMS commented on the process.

Mr. GREENISH said from a pbarmaceutical point of view this was one of the most interesting papers he had heard for a long time. It was of particular interest to find that the leaf yielded more atropia than the root. He remembered that last year Mr. Naylor had shown that a better extract was made from the leaf than from tbe root, confirming tbe previous observations of Mr. Squire, and last year in Russia Professor Dragendorf bad shown him tbe results of a series of experiments by wbich he had proved that the leaves of henbane contained the largest proportion of hyoscyamin. It seemed as if we should return to the old preference for the leaves for pharmaceutical purposes.

Mr. GROVES referred to the experiments of Ladenburg on the henbane alkaloids, and asked if Mr. Gerrard had any reason to suspect tbe preseuce of two alkaloids in belladonna.

The PRESIDENT said tbat Ladenburg, as shown in Mr. Merck's paper read tbat day, had found hyoscyamin in atropa belladonna and otber plants as well as atropin. The use of the root of belladonna is a comparatively recent innovation, which seemed hardly to stand the test of experience. It was certainly not wortb while to destroy the plant to get at the root if the leaves will answer as well or better.

Mr. CARTEIGHE said that be could hardly accept Mr. Gerrard's conclusions in opposition to those of Professor Ladenburg on the experiments he had made in the present transition state of our knowledge respecting the alkaloids. In the drying of crystals a very slight error would affect such slight percentages as these. He hoped Mr. Gerrard, with the aid of a grant from the Conference, would continue bis experimeuts, and try to settle what was a matter of much importance, as to exactly the alkaloids of belladonna.

Mr. GERRARN, in reply to Mr. Naylor, said he had given the quantities just as they came out, and he tbought it was ratber cavilling to assume their incorrectness. He had used a kilogramme of the material in each case. As to tbe alkaloids, in the present uncertain state of our knowledge respecting them, he did not wish to fix himself to definite distinctions between hyoscyamin, atropin, duboisin, and daturin. In reply to Mr. Cleaver he preferred to estimate tbe alkaloids exactly in accordance with what he actually obtained.

Further Notes on Shale and Petroleum Products.

By Alfred H. Allen, F.C.S.

MR. ALLEN did not read a paper, but showed some experiments to prove that hydrocarbons from shale and from petroleum could be distinguished by the action on them of bromine and sulphuric acid.

Cinchona.

THREE papers on cinchona were read consecutively. The first, on "Red Bark," by J. F. Howard, F.R.S., was addressed mainly to cultivators, to whom the remarks ought to be of importance, but who, Mr. Howard seems to complain, are generally too indifferent to scientific suggestions. The varieties of all the cinchona species are so numerous and so indistinctly characterised that some students are disposed to abandon the attempt to classify them in despair, and believe in unlimited hybridity. Mr. Howard, however, believes that fixity of type is the rule and hybridity the exception, though he admits that variability occurs through hybridity in India. True red bark is the *Cinchona succirubra* of Pavon, who so named it because the colour of its juice after exudation turns to an intense red. This bark is largely cultivated in India, but without sufficient attention to slight variations, which are of great importance. This bark as it grows older becomes redder in colour and less rich in alkaloids. Some used to be imported from South America, which fetched a high price, but was useless to the manufacturer, as it contained only about 2 per cent. of alkaloids, of which cinchonine and cinchonidine predominated. *C. coccinea* is also grown in India, and is confounded with *C. succirubra*, but Mr. Howard finds it to be considerably more valuable. Another red bark known as *Cuchuria*, or pig's-skin sort, is of medium value Mr. Howard wishes to have discussed the question of the relative therapeutic efficacy of the pharmaceutical preparations of *C. succirubra* and *C. officinalis*. He does not believe the medicinal effect is the same in both cases. He has formerly shown that the astringent principle in the two is entirely different.

Mr. E. M. Holmes sent a paper entitled "Which Kinds of Cinchona Barks Should Be Used in Pharmacy," which carried internal evidence of having been written for the recent Congress. The author pointed out the unreliability and want of uniformity among South American barks, and suggested for discussion the question whether cultivated barks, such as those of India, Java, Ceylon, and Jamaica, should not replace the uncultivated sorts in medicine and pharmacy, and if so, what variety should be selected. His own opinion evidently tended towards recommending the *C. succirubra*, "since it can be procured of good quality, contains all the cinchona alkaloids (except aricine), is less liable to be mixed with hybrids, and is more easily distinguished by its external characters than any other species." Mr. Howard had shown just previously that both varieties and species are confounded in India under the title *C. succirubra* ; that true succirubra bark is particularly poor in alkaloids ; that it is not easy for an unpractised eye to distinguish between the species when not in flower, and he had implied that hybridity occurred more frequently in India than in South America. Clearly the subject offered handsome opportunities for discussion. Mr. Holmes also offered some remarks expressly addressed to the International Congress, showing the variations in strength in the cinchona preparations of different countries.

A third paper, by Mr. W. de Neufville, was in opposition to a recent communication from Flückiger, who had, as quoted by Mr. Holmes, recommended the preference of Indian to the now official Calisaya bark. Mr. de Neufville maintained, against Professor Flückiger, that Calisaya bark was in very regular supply on the market, and had been even during the war between Peru and Chili ; that it was being cultivated in Peru and Bolivia ; that it is less mixed with inferior barks than the Indian sorts, and that it is more easily judged from external appearances. If the flat Calisaya bark is abandoned, he thought it desirable to substitute the quill Calisaya.

Mr. H. S. WELLCOME said it had been clearly shown that the percentage of alkaloids in *C. succirubra* differed considerably according to the conditions under which it was grown. He did not think it would be desirable that any one particular species should be taken as an officinal standard bark ; certainly quill barks should not be chosen, as they were so often mixed with inferior grades, and difficult to distinguish except by assay. It would be better that a bark yielding a certain proportion of total alkaloids with a certain percentage of quinine should be adopted as the necessary standard. The same varieties of cinchonas grown at the lower altitudes were generally found to contain a much smaller percentage of alkaloids than when grown at a higher elevation. Some of the cheaper alkaloids, especially cinchonidia, had lately grown greatly in favour in India and the United States. Mr. Wellcome also referred to the recently published description of the new Cuprea bark by Dr. Robbins, of New York. This is obtained exclusively from cinchonas grown at the lower altitudes in which respect it is an exception as a valuable quinine bark ; it yields an average of 2 per cent. of quinine. Lastly, the speaker mentioned that the fluid extract of the U. S. Pharmacopœia was unsatisfactory in consequence of the precipitation which occurs. The compound tincture was most in favour there.

Mr. BRADY said the specimens sent by Mr. Howard were very interesting and would be found worth examination.

The PRESIDENT said there was present one of the chief authorities on cinchonas in the country. Perhaps Dr Paul would make some remarks.

Dr. PAUL said there was, no doubt, a necessity that some alteration should be made in the selection of barks to be used for pharmaceutical purposes. But there was a great deal of difference of opinion as to which should be adopted. The official yellow bark, the flat Calisaya, is now almost worthless for quinine makers, as it is almost entirely destitute of the alkaloid, and only contains some 2 or 3 per cent. of other alkaloids, chiefly cinchonine. De Vrij and Flückiger were enthusiastic advocates of Indian barks—perhaps to an extreme degree. There were many reasons in favour of crown barks. They contained from 5 to 10 per cent. of alkaloids with a large proportion of quinine. In the red bark, succirubra, cinchonine predominates. At the same time, as Mr. de Neufville had stated, much excellent bark came from South America, especially the quill Calisaya, which was fairly rich in alkaloids and was good enough generally for all pharmaceutical purposes, besides which there was always a plentiful supply. It would seem on the whole most desirable not to exclude South American barks, but to alter the kind officially ordered and to allow some Indian sorts to be used also.

Mr. GROVES said there seemed to be a tendency to value barks exclusively for the alkaloids they contained. He supposed that the extractive portion was of some medicinal value. If the alkaloids only were wanted they could be had in pure form.

Mr. CLEAVER said there was so much discrepancy among barks imported

that druggists ought always to insist on the proportion of alkaloids being guaranteed by the wholesale house. They could get any quality they liked if they would pay the price for it.

The Crystallisation of Orthophosphoric Acid.

By H. P. Cooper, F.C.S.

The author had investigated the conditions under which the above acid could be made to crystallise. It will be remembered that a good deal of interest was manifested at the Pharmaceutical Exhibition in May last, in a display of crystals of this acid. Mr. Cooper had tried to produce similar crystallisation. Taking the ortho acid of specific gravity 1·750 he evaporated this in different portions to different degrees of concentration. No tendency to crystallisation was traceable down to a specific gravity of 1·875, which then showed the presence of pyro and meta phosphoric acids. But into an acid of 1·850 specific gravity he dropped a crystal of sodium sulphate, and in the course of a few hours the acid began to crystallise, and ultimately the contents of the bottle were transformed into an almost solid mass. He finds that the smallest fragment of the crystallised acid will induce crystallisation in the liquid acid of 1·850 specific gravity, but crystallisation cannot be induced in acid of lower specific gravity than 1·800 nor above 1·850.

Investigations on Succus Glycyrrhizæ, Particularly as Regards the Amount of Gum Contained.

By H. P. Madsen, Vice-President of the Danish Society of Apothecaries.

This was an interesting paper, but being taken at the end of the Conference was read in abstract, and lost the attention it deserved The author stated that much of the liquorice juice in the market, although having the best marks, is nevertheless adulterated, both as regards its composition and its trade-mark. There exist fabricants (*refondeurs*) who purchase the juice from the large manufactories in order to dissolve and mix it with different farinaceous substances or ordinary gums, and occasionally, perhaps, with the juice of fruits, as plums, carob beans, chestnuts, &c.

Mr. Madsen had had his attention directed to the subject by having a mixture containing ext. glycyrr. which would not mix clear with another tincture. There was evidently gum in the extract, and in conversation with the representative of one of the larger French liquorice manufactories, he learned that gum as a rule is added to liquorice juice when the latter is to be made up into cylindrical sticks, in order to make it durable and improve its appearance.

He experimented upon eight samples which were bought at different places, and all bore the mark "Baracco"; six were of the usual cylindrical stick form, one was of brick shape, made by MM. Abauzit Perdrix and Aubressy, Uzès, France, and one was an extract of liquorice root with water, prepared by Assessor Pharmaciæ Piper. The last two named were marked respectively A and H.

The following table resumes the experiment:—

Number	Percentage of Water contained	The Dried, in Water Insoluble Residue	Percentage of Dry Extract contained	Percentage of Ash	Percentage of Sugar	Percentage of Arabin
A	16·50	17·95	65·55	12·41	14 48	3·32
B	15 00	25·40	59·60	9·13	15·17	4·36
C	12·60	25·15	62·25	6·26	15·11	2·43
D	14·35	21·10	64·55	6·60	11·09	1·52
E	14·50	34 50	51·00	6·06	10·09	10·49
F	11·45	26·95	61·60	14·23	10·82	9·13
G	10·50	37·50	52 00	6·34	7·33	8·39
H	31·56	traces	68·44	7·27	12 84	1·19

It seems that gum is found in all succus glycyrrhizæ. There was no doubt *H* was liquorice root macerated with cold water, but gum is to be found in the wood of almost every tree. The sample *D* nearly agrees with *H*, when one bears in mind that *H* contains 31·56 of water, whilst *D* only contains 14·35. As regards *A*, which is in brick-formed pieces, the manufacturers assured the author that there was no trace of admixture, and that the larger amount of gum must be due to the fact of the root being exhausted by steam.

It seemed pretty certain that to *E*, *F*, and *G* gum had been intentionally added, doubtless with a view of giving the liquorice a fine appearance, particularly when broken in fragments—but making it useless from a pharmaceutical point of view.

This concluded the programme of papers. The thanks of the Conference were passed to each author, after his paper had been read, on the suggestion of the President. The next business was the so-called "election" of officers. This is done by the distribution of printed papers, on which appear the names "suggested" by the Executive Committee. The President mentioned that any member was at liberty to substitute any names for those suggested—an act of grace which is hardly likely to cost the committee any portion of its oligarchic power, as, in the possible event of an unpopular officer being proposed, a score of votes against him would probably be cast for nineteen different persons, so that his majority would not be affected. The following were the officers appointed:—

Officers for 1881–82.

President

Professor Attfield, Ph.D., F.R.S., F.I.C., F.C.S.

Vice-Presidents

Thomas Greenish, F.C.S., F.R.M.S., London
R. Chipperfield, Southampton
J. R. Young, Edinburgh
Professor Tichborne, LL.D., F.C.S., Dublin

Treasurer

C. Ekin, F.C.S., Hounslow

General Secretaries

F. Baden Benger, F.C.S., Manchester
M. Carteighe, F.I.C. F.C.S., London

Other Members of Executive Committee

Alexander Kinninmont, F.C.S., London
J. C. C. Payne, Belfast
Sidney Plowman, F.I.C., F.C.S., London
W. B. Randall. F.C.S., Southampton
P. W. Squire, London
Charles Symes, Ph.D., F.C.S., Liverpool
G. S. Taylor, F.C.S., London
J. C. Thresh. B.Sc., F.C.S., Buxton
C. Umney, F.I.C., F.C.S., London

Local Secretary

A. R. Dawson, Southampton

Auditors

R. Dresser, York
James Spearing, Southampton

Mr. Chipperfield next rose and said he was deputed by the pharmacists of Southampton to invite the Conference to that town for the autumn of next year. Though he himself might not live to take part in it, he could assure them of a hearty welcome. He ought to add one thing: the chemists of Southampton were characterised by poverty—honest poverty he believed he might say—and they could not hope to emulate the reception which the York chemists had given; but they would do their best, and hoped that they might be able to entertain the Conference without causing any great amount of grumbling.

The invitation was accepted on the proposition of Mr. Schacht, seconded by Mr. Borland (Kilmarnock).

Mr. Brady moved a vote of thanks to the York Local Committee—especially naming Messrs. Davison, Clark, Dresser, and Sowray—for their generous labours in arranging for this Conference. It would take too long to give in detail all the reasons they had to be thankful to them. The only fault was that they had provided for the Conference more entertainment than their leisure allowed them to use.

Mr. Ekin seconded this vote, which was carried by warm acclamation.

Mr. Davison, in reply, expressed the pleasure with which they had received the Conference in York. He also remarked on the satisfactory evidence which the Conference gave of young men arising to fill up the gaps occasioned from time to time by death in their ranks. Messrs. Clark, Dresser, and Sowray also responded, each being received with cordial cheers.

The election of officers having been reported on by Messrs. Proctor (Newcastle) and Clark (Leicester),

Professor Attfield briefly returned thanks for his election as President.

Dr. Symes moved, and Mr. Ward seconded, votes of thanks to Messrs. Terry & Co., the York Glass Company, and Messrs. Backhouse & Co. for the facilities afforded to the Conference for visits to their respective establishments.

Professor ATTFIELD moved, and Mr. GROVES seconded, a vote of thanks to the Governors of the Merchants' Company for the use of their most convenient suite of rooms.

This vote was acknowledged by Mr. Alderman Terry.

Lastly, Mr. GREENISH moved a vote of thanks to the President, which was seconded by Mr. KINNINMONT.

Mr. REYNOLDS, in reply, said that on examining the visitors' book he found 168 signatures, a number within eight of the highest ever reached, and only exceeded by the meetings in London, Liverpool, and Glasgow. There had been 13 other meetings when the attendance had been lower, in some cases conspicuously so. He was not vain enough to suppose that he deserved any large share of credit for the success of the meeting. If he did suppose it he should be open to the satire of Sheridan on the Prince Regent, who, he said, "particularly prided himself on the recent abundant harvest." It was on record that a man had gone away happy from a funeral because everything had passed off successfully. He (the President) should now join the staff of past moons whose light had assisted so much to render this meeting of the Conference successful.

THE EXCURSION.

ON Thursday some little rain fell about 7 A.M., and caused the "worm-seekers" some anxiety lest a continuance of bad weather should interfere with the programme so liberally arranged by the Local Committee. This anxiety was not shared by those less fond of precocious stirring, and who rose at a later hour, for the rain soon cleared away, and the remainder of the day, if not brilliant, was dry, and bore favourable comparison with those which preceded it. At 10.30 a party of about 140, including some 30 ladies, left the spacious and newly-decorated York station by special train for Ripon and Fountain's Abbey. At an early hour we got the "tip," and with the most devout precision took our seats facing the engine on the left side of the carriage, whilst our friend and monitor, either from forgetfulness or extreme courtesy, placed himself exactly in the reverse position and on the right side. After passing through a certain tunnel on the way we were to look out for the ruins of an ancient "Norman castle" at Knaresborough; this we did, the view lasting but a few moments, and impressing us with the fact that the unsparing hand of time had removed a considerable portion of the original structure. On arriving at Ripon at 11.40, the station being some distance from the city, conveyances were waiting to take the party to the Cathedral, a noble structure built on the site of, or near a monastery founded by the monks of Melrose in the year 660. The present structure, built at different periods, includes a portion of a small church said to be built by Wilfred. Our well-informed and pleasant guide, whilst not being over positive in the particulars, entertained no doubt whatever as to the genuine originality of the crypt known as St. Wilfred's Needle, reached from the south-east angle of the nave by descending a flight of steps and passing through a long narrow passage, turning at right angles, about 12 feet long, nearly 9 feet wide, and about the same height. It is a cell with a barrel vault and some plain round niches in the walls; there still remain the font and the position for the crucifix. At the west side runs another passage, terminating in an opening in the north wall 18 inches deep by 12 wide. Through this, the ancient legend runs, ladies formerly passed as a test of chastity, but modern refinement has modified this, and it is now alleged that the maiden who "threads the needle" gains a husband before a year has passed, and a married lady with a bad husband and passing through in the opposite direction gets rid of him within the same period. We were assured by our guide that ladies go through the ordeal daily. After two slim figures had passed through with perfect ease, some little excitement was caused when the progress of a lady was arrested half way, and this was heightened by an exclamation from behind vigorously indicating the whereabouts of the lady's husband. The work of extrication did not last long, and the lady came forth uninjured. The shrine of St. Wilfred's has disappeared, but there was an abundant feast for the antiquarians, which, as the scientific journals sometimes say, is not suitable for abstraction. After lunch, which was provided at the Unicorn, the before-mentioned vehicles conveyed the party a distance of about three miles to Studley Royal, the home of the Marquis of Ripon. Passing through the park gates and a long avenue of magnificent trees, the picturesque effect was heightened by the red deer browsing on the undulating pasture, and the church spire in the distance; then, through the inner gate on foot and turning to the left, the road descended to near the level of the water, when a beautiful view of the Abbey emerging from a glen met our view. No guides were required, as hands raised on supports some 4 feet high pointed out the way at every turn or crossing. The party, as usual on such occasions, broke up more or less into sections, but all visited and admired the chief points of interest — the Temple of Piety by the water's side, the Octagon Tower, on much higher ground, and Anne Boleyn's seat, or the Surprise, giving a fine view of Fountain's Dale, all finally reaching the chief point of attraction, the fine Abbey ruins, founded by Benedictine monks from St. Mary's, York, who objected to the lax discipline, when in the twelfth century the latter became one of the wealthiest foundations in England. The extensive buildings were carried on with various intervals of repose until the latter part of the fifteenth century, when the great tower (which is still very perfect) was erected by Abbot Huby. The transept and nave, the great cloister, 100 yards long, supported on rows of columns with vaulted roof, which formerly supported the dormitory, the fratery, 100 feet long, the ancient staircase, the curious old kitchen, and many other points of interest were gone over, when the whole party gathered in a group and were "photographed like this and photographed like that." Just a glimpse at the exterior of Fountain's Hall, built from part of the ruins of the Abbey, and all made their way to the cars waiting to convey them back to the Unicorn, where high tea was served at 5.30. Everyone appeared to be in excellent spirits, and after tea came the usual votes of thanks, which were well given, well deserved, and ably responded to; this part of the proceedings being enlivened by a comic rendering of "The Babes in the Wood," by Mr. Stanford, and songs by Messrs. Allen, Hills, Hughes, and Plowman. At the conclusion the party proceeded to the station, where the special train was in waiting and conveyed them back to York, arriving there just before 9 P.M. The memories of this pleasant day will long live in the minds of the whole party.

Besides this excursion visitors to the Conference were favoured with opportunities of seeing the works of Messrs. Terry & Co, manufacturers of lozenges, jujubes, and confectionery generally; and also those of the York Glass Company, which could not fail to interest every member of such a fraternity. We hope the company will soon find customers for the many carboys which were continually "on blow" for the amusement and instruction of any small party of pharmacists as these visited the works. The company also showed in operation a new arrangement for graduating measures lately devised by Mr. Spence. The measure is placed on a small platform which is moved up or down by the operator so as to get it exactly level with his eye, while water is dropped from a standard pipette above, with every facility of ensuring the utmost exactness. The operator marks the measure with whiting, and afterwards grinds the marks into the glass.

The following attended the Conference:—

Ashton-under-Lyne.—William Bostock. *Barnsley.*—T. Lister. *Barnstaple.*—W. Symons. *Bath.*—P. Braham, R. D. Commans, C. Ekin. *Belfast.*—J. C. C. Payne. *Birmingham.*—W. A. Tilden, D.Sc. *Boston Spa.*—M. Rogerson. *Bradford.*—T. Pullan. *Brighton.*—W. D. Savage, W. G. Savage. *Brixton.*—J. C. Thresh. *Cheltenham.*—W. Barron. *Chertsey.*—J. Boyce. *Clifton.*—G. F Schacht, W. A. Shenstone. *Dalmuir (N.B.).*—E. C. C. Stanford. *Darlington.*—J. Robinson. *Doncaster.*—J. T. Haselby, M. H. Stiles. *Driffield.*—L. B. Ross. *Droitwich.*—W. H. Hunting, E. Taylor. *Dublin.*—C. R. Tichborne, Ph.D. *Edinburgh.*—G. H. Laird, J. Mackenzie, T. Symington, J. R. Young. *Fence Houses (Durham).*—F. W. Hunter. *Gateshead.*—H. B. Brady. *Glasgow.*—D. Frazer, A. Kinninmont, J. Nicol. *Harrogate.*—J. Coupland, J. H. Wilson. *Huddersfield.*—J. Jarmain. *Hull.*—J. Baynes, jun., C. B. Bell, W. H. Hammond, C. L. Metcalfe, R. M. Stoakes. *Kilmarnock.*—J. Borland. *Leeds.*—C. H. Bothamley, W. K. Ferguson, J. Hellowell, H. Pocklington, R. Reynolds, R. F. Reynolds, C. W. Smeeton, Wm. Smeeton, S. Taylor, G. Ward, E. Yewdall. *Leamington.*—W. H. Pullin. *Leicester.*—J. W. Clark, J. G. F. Richardson. *Liverpool.*—A. C. Abraham, M. Conroy, E. Davies, A. H. Mason, R. Sumner, C. Symes, Ph.D. *London.*—F. Andrews, H. E. Armstrong, Ph.D., J.

Attfield, Ph.D., F. Braby, R. Bremridge, S. M. Burroughs, M. Carteighe, E. L. Cleaver, C. R. Drysdale, M.D., F. W. Fletcher, A. W. Gerrard, H. Gillman, T. Greenish, W. Hills, A. Hodgson' A. B. Lewinton, W. Martindale, J. K. Matterson, W. A. H. Naylor, F. Pasmore, B. H. Paul, Ph.D., E. Pettinger, S. Plowman, P. Prineep. J. Robbins, J. Robinson, R. A. Robinson, A. Sangster, S. L. Stacey, W. H. Symons, G. S. Taylor, H. S. Wellcome, J. Williams, M. W. Williams, A. C. Wootton, F. Wrentmore, C. R. A. Wright, D.Sc., T. R. Wright. *Malton.*—J. Buckle. *Manchester.*—F. B. Benger, T. Bradbury, L. Siebold. *Newcastle-on-Tyne.*—N. H. Martin, B. S. Proctor. *Newcastle, Staffs.*—E. H. Croydon. *Preston*—J. G. P. Simpson. *Ripon.*—J. B. Parkin. *Rochdale.*—J. Booth. *Scarborough.*—H. Chapman, J. Whitfield. *Selby.*—T. J. Cutting. *Settle.*—J. W. Shepherd. *Sheffield.*—A. H. Allen, G. Ellinor, G. T. W. Newsholme, W. Ward. *Shepton Mallet.*—G. J. Cottrill. *Sherburn.*—J. Dove. *Southampton.*—R. Chipperfield. *St. Ives (Hunts).*—H. Barton. *Swansea.*—N. M. Grose, J. Hughes. *Tadcaster.*—P. Howell. *Torquay.*—H. Hearder, W. Hearder. *Wakefield.*—J. L. Chaplin. *West Hartlepool.*—J. M. McBeath. *Weymouth.*—T. B. Groves. *Wigan.*—J. Phillips. *Wokingham.*—J. G. Barford. *York.*—T. Batty, J. R. Blanshard, E. Carter, J. Clark, F. Collins, R. Cummings, R. Davison, R. Dresser, I. T. Furniss, W. T. Hey, T. W. Hodges, W. Hood, M.R.C.S., F. Leak, W. Lund, G. F. Lupton, J. A. Lupton, W. McKay, R. H. Oakley, T. R. Oglesby, H. J. Pratt, J. T. Purdy, T. J. Russell, J. Saville, S. Scruton, W. C. Sellé, F. Slinger, W. Slinger, J. Sowray, H. Terry, L. J. Thompson, W. M. Thompson, T. Wand, and J. Young.

The number of signatures in the Conference Book at York (excluding duplicates) was 166, of which 33 were those of York residents. The total number has been exceeded on three occasions, namely—at Liverpool in 1870 (170), at London in 1874 (175), and at Glasgow in 1876 (176). At Glasgow only was the number of visiting members greater (142, as compared to 133 at York).

PHARMACEUTICAL REMUNERATION

In Relation to Pharmaceutical Progress.

By Barnard S. Proctor.

[The following paper was written for the British Pharmaceutical Conference, but was not read there for the reasons given in our report.]

The question of prices might be thought out of place in a scientific conference, but that pharmacy cannot flourish without a physical frame, nor can the physical frame of the pharmacist flourish unless the fruits of pharmacy are fattening.

The chance of pharmacists growing fat, though a very remote one, is not altogether hopeless, and is much to be desired. Such a consummation would be greatly promoted by a clear understanding on the part of the pharmacist, and on the part of the public, of the difference between pharmacy and the collateral trades and sciences with which it is associated.

Pharmacy proper is not a trade, nor a profession, but is skilled work. *It is the art or calling of preparing medicines.* A chemist is a preparer of chemicals, or one versed in chemistry, not a dealer in chemicals. A druggist is a dealer in drugs, not a preparer of drugs nor a student of materia medica. A process at first chemical and carried on by chemists when enlarged in sphere becomes an established *art* dissociated from chemistry generally.

It is appropriate that the chemist, as a maker, should sell wholesale or retail the products of his operations, but in many instances it ceases to be appropriate to retail by chemists the products of another chemist's work, such as soap, sugar, glass, iron, &c.

The association of trade in pharmaceuticals from extraneous sources with the practice of pharmacy and trade in pharmaceuticals made at home is a matter of convenience both to the pharmacist and the public. The same may be said of trade in articles of materia medica and the *small* chemicals used in the household or manufacturing arts. They naturally fall into the same hands for want of any other appropriate channel for their distribution.

If it be desirable that patent medicines should exist, it is probably most desirable in public interests that they should be dispensed by pharmacists, and the same may be said of such drugs and chemicals as are used for medicinal purposes, but the advantage is not so great as to require legislative interference in that direction, except as relates to the sale of poisons, and the public will not give the pharmacist an advantage unless he gives them an equal advantage in return.

The dissociation of pharmacy from sundries must coincide with a greatly reduced number of pharmacists, which will be an advantage to the public and to the pharmacist of the future but a trouble to the pharmacist of the transition period. Whether the pharmacist suffers much or little depends mainly upon whether or not he suits himself to the public wants and the temper of the times. In large towns a pharmacist will promote pharmacy by avoiding incongruous trade. Door-mats and potatoes may be essential to the existence of an establishment in a village, but would be the death of one in a great industrial centre.

Oils, paints and colours, tea and tobacco will be longer tolerated by the public, but should be tolerated by the pharmacist only so long as he sees no chance of sowing the seeds of pharmacy to supplant them.

The trade in all articles of materia medica, and invalids' requisites not readily obtained from other tradesmen, may be regarded as the permanent associate of pharmacy and as being directly promotive of its growth.

During the transition period it must be a serious question to every one doing a mixed trade as chemist and druggist whether he should sacrifice his pharmacy, aim at its development, or toil on in the old path till time or his betters push him to one side. In determining this point he will be much guided by his education, his tastes, his means, and the requirements of his neighbourhood.

The value of capital has greatly decreased during the last ten years; the value of labour has probably increased. The value of Consols has risen from 93 to 101, *i.e.*, 93*l.* were worth 3*l.* per annum ten years ago, now 101*l.* is only worth the same.

Interest has fallen from 3·22 to 2·97. That is to say, to yield a given income, interest doing less, labour must do more of the work. The relative value of labour has advanced.

Notwithstanding the correspondence which recently appeared in the *Pharmaceutical Journal* regarding the poor pay of assistants, I have no hesitation in saying that salaries have doubled during the last 30 years. Formerly 70*l.* to 80*l.* was the salary of a responsible assistant, now it is frequently obtained by a good junior, and good seniors are only occasionally met with at double that sum.

Those who have more money than brains should go into trades requiring more capital than intellect—the dealing in patent medicines, druggists' sundries, &c.

Those who have large heads and small purses should be engaged in pharmacy.

The development of distributive agencies is a result of progressive civilisation and the division of labour.

The germination of new trades is equally an evidence of the same progress.

The great variety in the nature of the materials dealt with by the pharmacist and the scope of his education fit him for the early development of little new things, but his deficiency in thorough trade principles disqualifies a typical pharmacist for the continuance of such developments after they take the position of established trades.

The pharmacist is like a jackall. He catches prey which promises nice little pickings, but the omnivorous grocer, like a roaring lion, pounces upon the repast, and devours prey, pickings, and jackall.

Lucifer matches were appropriately first made in a chemist's shop, and if the inventor had been as enterprising and ambitious as he was intelligent and original he would probably have given up pharmacy in favour of match-making. But when the making of matches developed into a manufacture the sale of matches ceased to have any special connection with the trade of the pharmacist.

An illustrious West London pharmacist once said if he had been a country chemist he would have sold anything he could have made a profit upon. He would have kept fiddlestrings had they been profitable.

Why should pharmacy be associated with such a multitude of miscellanea?

Why pharmacy and fiddlestrings, unless it be the beauty of alphabetical arrangement?

The tradesman who arranged his T's in order, "Tartaric acid, tar, tea, testaments, treacle, and turkey rhubarb," might put his F's "Pharmacy, fancy goods, fiddlestrings, flannel, photographs, and fucus vesiculosus."

There is another element in the selection of sundries by pharmacists which makes it the more necessary, so long as the present temper of pharmacists continues, to dissociate pharmacy from current-going trades. While a thorough tradesman looks mainly to a large consumption of his goods, and a rapid turnover of his capital at a moderate percentage, a pharmacist looks upon all goods as paying badly when the smallness of the percentage contrasts greatly with that which he makes in the practice of his art. He wants a large percentage, such as he can only get on things so little used that the customer thinks but little and knows less about their market value. This disposition tends to perpetuate the pettyness of pill-makers. It begets a fear of the public learning the cost price of drugs. It involves the tradesman in awkward excuses when told that a neighbour sells the same article at half the price, an inconvenience which could scarcely exist if no one gets more than a *reasonable* profit; the problem is to determine what is a reasonable profit—a point which would be more easily determined if we could look at the subject from the customers' point of view, and teach our customers to look at it from ours. But in the absence of the power to see ourselves as others see us, and to make others see us as we see ourselves we must look for other modes of judging the suitability of the works we take in hand to occupy the time and capital for which the pursuit of pharmacy does not give ample employment, and for other modes of judging as to what are reasonable prices for our goods or our services.

The idleness of pharmaceutical hands leads them into temptation to produce specialties for their customers—for the "million" or the "profession." During the time the pharmacist is not occupied in dispensing or making his preparations he naturally occupies himself in putting up simples or compounds of a saleable nature; but such work can be done quite as well by girls at 3*s.* or 4*s.* a week. The pharmacist soon discovers that he can buy sundries ready packed at a price which points to the value of his labour being at zero. And they are put up in a style with which he can scarcely compete, because division of labour takes the place of versatility of talent. If he turns his attention to his tinctures, syrups, &c., he discovers that such things can be made more cheaply and better by gallons in a laboratory than by pounds in his back shop, unless he is prepared to value his time at zero, because division of labour takes the place of versatility of talent.

If dissociation of the drug trade from pharmacy proper should take place to any considerable extent, a new class of dealers in drugs and chemicals would spring up. This would endanger the position of pharmacists, who would then occupy a position somewhat analogous to that of the apothecaries when they became dissociated from chemists and druggists. And the new drugsters would probably be jealous of the "encroachments" of pharmacists upon the provinces of the drugster, as the pharmacist is jealous of dispensing by medical practitioners; and yet the drugster would have a hankering after the privileges of the higher class, such as recently evinced by the chemists and druggists of Ireland and such as has been shown by the chemists, druggists, and apothecaries of England in former years. It is well we should be saved from the source of such repeated unsettlements, and the best way to accomplish this is to be satisfied that we are tradesmen and skilled operators, but not professional men, and to be satisfied to do the trade part of our calling upon thorough trade principles. Other tradesmen would then have little temptation to take up the legitimate articles of the drug trade, and the public would have little temptation to go past the druggist on the score of economy.

The temptation to grocers to sell drugs lies in the large profits compared with the trouble and responsibility involved, and *their temptation* should be our *indication* that our profits are too large in any particular instance.

The trouble and responsibility of selling an ounce of rhubarb or Gregory's mixture is just about equal to that of selling ¼ lb. of tea or coffee.

If the educated pharmacist, accustomed to the use of the microscope, can see what appears to him a great responsibility in the sale of such drugs, it is more than the public or the Government can do, and there will soon be some pharmaceutical Horniman or Johnson, who will relieve us of all responsibility by placing packed drugs in the hands of any description of retailers, and taking upon himself all the responsibility regarding the quality and contents of the packets bearing his name and trade-mark.

Such a project would form a grand opening for seven plucked Minors with 7,000*l.* to form a limited liability company to supply seven popular drugs in packets with suitable directions to 70,000 retailers all over the land.

The responsibilities of the retailers would be "nil" and that of the shareholders "limited."

In our trade if a man weighs, wraps, labels, and ties up one-pennyworth of goods while his customer waits for it, he gets too little profit if the goods cost him nothing, but a newsagent will make money by selling penny papers, costing 8*d.* per dozen, or halfpenny papers, costing 4*d.* per dozen. 3ss. white wax, 3ss. spermaceti, 3ss. alkanet root, 3ij. olive oil. Fourpence! Those are large profits. But it does not pay, because if you had a fair run of such customers, *and such only*, it would not yield an income.

If you were fully occupied six or eight hours a day in the ready-money sale of packed goods, costing you 11*d.*, and sold for 1*s.*, you might make a fair income of it, though on all hands it would be acknowledged that the profit was small. There is no likelihood that either of these extreme cases will occur, but there is much between them that is likely to become common. If we have many packed drugs introduced ready for sale, it is not unlikely that the cost of the 1*s.* packet may be to the retailer 8*d.* or 9*d.*, and that he may find it desirable to give a discount of 1*d.* or 2*d.* in the 1*s.* for ready money. And to be fairly occupied with this trade would pay better than to be fairly occupied with dispensing as dispensing is at present usually paid for. The difficulty is, how is a druggist to find customers enough to keep himself fairly occupied in handing out the goods and taking in the money? It can only come about by a large reduction in the number of druggists.

I long for the millennial happiness of the time when men will have the certainty of an income proportionate to their conscientious and intelligent performance of duty, without the savage struggle to cut the throats of their neighbours. It is not a pleasure to me to do a little murder, but I cannot rid myself of the conviction that life *is* like a battle of hungry rats.

According to the laws of nature and the constitution of the world we must eat our neighbours or they will eat us. The best thing we can do is to eat *them*, with all the civility and politeness imaginable, and, when we have finished our repast, express our thankfulness in the words of the unsophisticated cannibal who ate the missionary and said he was a very nice man.

In Newcastle during the last six years we have eaten twenty-one chemists, no doubt many of them very nice men.

The "Newcastle Directory" for 1875 gives a list of 79 chemists and druggists, that of 1879 gives a list of 63 chemists and druggists, and that of 1881 gives a list of 58 chemists and druggists.

Going further back, there were at one time five or six pharmacies in Grey Street, now there are two. There were two in Mosley Street, now there is one. There were two in Collingwood Street, now there is one. There were two in Dean Street, now there is one.

When a pharmacist meets one of his fraternity in the street, the natural thought is, Which of us must go next? Which is beloved of his neighbours? *He* will next be reported a very nice man. If your neighbour does his business at such prices that he cannot live long you would like to hide his light under a bushel while it shines, and examine his ashes under the microscope when he is burnt out. But of the neighbour who drives his customers to your shop by his good prices, or any other means, you think, What a nice man he is! And when all is over, with philosophic resignation you contemplate the beautiful ruins of their pharmacies and say, "What a happy medium I have been to have lived between two such neighbours!"

If any fellow-pharmacist looks upon me as a nice man, and desires to try his carnivorous powers, I shall beg to disagree with him.

At present, success in trade depends too much upon the valuable art of lying. I have no doubt any professor who could guarantee high proficiency in this art would meet with many pupils. Any man can grow strawberries and tell you they are very fine, but it is only a select few who know how to advertise them "as large as hedgehogs and twice as sweet."

The commonplace man can only speak the insipid truth about his drugs, for the truth about drugs is generally insipid, however strongly the drugs may taste, or he will tell lies which are not swallowed wholesale because they have not a popular smack about them, and being unsuccessful with both he is almost driven to treating his customers well.

During bad times general tradesmen get into the temper of sick devils: they would turn saints, and do all things on liberal terms, rather than not do them at all; but when times mend they like to do their neighbours, as under similar circumstances their neighbours would do them.

With pharmacists the times must be considered not only chronically, but essentially bad, so long as the number of pharmacists is twice as large as there is pharmaceutical employment for, and, as I said before, they do not like the low profit trade—it is unprofessional. They do not like open competition in packed sundries, where little girls at 3*s.* a week may drive them out of the market, and they are driven to the making of their own specialties, which, if well backed up with the spirit of quackery, still afford them the chance of big profits, and for the sake of big profits the unprofessional character of the occupation is ignored. Rather than follow the example of the sick devil, they would undertake to cure the devil of his sickness for thirteenpence-halfpenny.

I need scarcely say that it is almost impossible to achieve any considerable success in a proprietary article through pure pharmaceutical skill.

Proprietary medicines, though not essentially evil, are so mixed up with evils that they cannot be regarded otherwise than as a temptation and a snare. Something more creditable must be found as a substitute for the trade in quack medicines. That we should sweep out our whole stock of patent medicines and then devote ourselves to personal quackery would be the introduction of seven devils into the back shop.

It is often said, as an argument against the lowering of the price of medicines, that if you reduce them to half the price, there will be no more consumed. That is probably quite true so far as the public is concerned, but the individual who reduces his prices is likely to sell more drugs provided he maintains excellence of quality, and I need scarcely say that in many of our articles a considerable reduction in price could be made without the necessity of any reduction in quality, if the consumption were increased so far as concerned the individual pharmacist. This increase can only be had at the expense of some other individual pharmacist.

To the pharmaceutical body in the aggregate a reduction of prices must mean a reduction of income. But the pharmaceutical body in the aggregate has no prescriptive right to the money of the sick public. And whenever the sick public find increased convenience in packed proprietary drugs or increased economy in buying at stores, and find these advantages sufficient to compensate for the absence of pharmaceutical skill and information, the pharmacist has no reason to complain that the public avails itself of advantages which others offer and he does not. Nor has the pharmaceutical body any reason to complain if others have the wisdom or the skill to do profitably what they, with all their education and training, cannot make the source of an income.

I do not know any principle which should guide a man as to the

prices he is to charge for his goods or his work but the one consideration of how he may make the most money in the long run.

How much any one may charge with advantage depends upon almost numberless varying circumstances—much, perhaps most, upon the willingness of neighbouring residents to pay liberally or otherwise; that willingness in turn depending mainly upon their means. But whatever the neighbourhood, it may be accepted as a rule that current-going articles should bear less profit than those which are slow going. It is very little use thinking of what your neighbours are doing in other streets of the same town, or in other towns. Their neighbourhood is not yours, nor are your current-going goods the same as theirs. Local price-lists are a delusion. Town's meetings to arrange prices are snares. In this, as in many other cases, I am convinced that in a multitude of councillors there is spoilt broth. Each tradesman must judge and act for himself, and it is as much as we can hope for, if a few general principles can be agreed upon. The first and clearest point is that with poisons come responsibility, and with increased responsibility should be associated increased profit. Another point which is so generally acted upon as to be scarcely worth naming is, that there should be a substantial, a conspicuous difference between the price by small quantities and by large bulks. On the other hand I am afraid it is almost necessary to remind pharmacists of a maxim well known in other trades, that it is well to supply a good article at a *moderate* price. What we hear most about in our trade is the laudability of getting *good* prices. Good prices!—what are they good for? Do you like to pay good prices? If we buy Howard's quinine, we like to buy it at the lowest price, and we regard those houses as good sources which supply it at the lowest prices.

While we are willing to pay a manufacturer an additional price for his goods because of known skill and the quality of his work, we do not acknowledge any such consideration in the subsequent dealing with the article; we should look upon a tradesman as rather quixotic who would pay the President of the Pharmaceutical Society 1*s.* an ounce more for Howard's quinine than the price for which it could be purchased of the co-operative supply association.

I think it is important that we keep equally clearly before us, in our dealing with our retail customers, the distinction between matters of mere trade and operations involving skill and responsibility. I do not think any pharmacist can be regarded as honourably upholding the status of the pharmaceutical calling who thinks he ought to be paid for retailing of commonplace drugs in the same ratio as dispensing.

The pharmacist who would do honour to pure pharmacy should either decline miscellaneous trade altogether or make a broad distinction between his trade and his art by competing with traders on trade principles, and competing in his art as an artist should, giving the highest abilities, and looking for proportionate payment.

It is the duty and the interest of pharmacists to educate the public to appreciate this point.

The public have no difficulty in appreciating the services of the haircutter, the tailor, the bootmaker, or the watchmaker when their charge is entirely or chiefly for skilled work and very little for material.

Surely the pharmacist may look for an equal appreciation when he shows that he himself appreciates the difference between selling his goods only and selling his services in conjunction with his goods.

Most of the opinions which I have now given utterance to were arrived at and noted for my own use 25 years ago. It is so much easier to preach than to practise that even after a quarter of a century's consideration it is difficult to move from the old rut into new lines till compelled, or, at least, aided, by circumstances. The furthest I have gone has been to avoid what are called capital prices in ordinary retailing where I thought these capital charges might tempt reasonable customers to inflict upon me the capital punishment of transferring their custom to some other reasonable tradesman. And as regards dispensing charges, I, some years ago, drew up a scale based upon the principles of work and responsibility entering into the rule rather than only the size of a mixture, &c.

From the fact that there is as much work in making a 4-oz. mixture as a 16-oz., I make a fixed charge for the *making* of mixtures of any size and any dose, but as the value of materials increases with the size of the mixture I add so much per ounce to the fixed dispensing charge; and as the responsibility increases with the diminution of the doses, the additional charge per ounce increases in like manner. Thus the fixed dispensing charge is 6*d.*, the price per ounce is 1½*d.* for ounce doses; 2*d.* per ounce for ½-oz. doses; 3*d.* per ounce for 2-drachm doses; and 4*d.* per ounce for 1-drachm doses. Additional charges of course being made for expensive materials when necessary, though the rule covers the great majority of cases. Thus an 8-oz. mixture, if the dose be 2 tablespoonfuls, the materials at 1½*d.* per ounce = 1*s.*, add 6*d.* for dispensing = 1*s.* 6*d.* = the price for an ordinary 8-oz. mixture.

If the dose be 1 tablespoonful, the materials at 2*d.* per ounce = 16*d.*, add 6*d.* dispensing = 1*s.* 10*d.* If the dose be a dessertspoonful, 3*d.* per ounce is 2*s.*, add 6*d.*, dispensing = 2*s.* 6*d.* total. If a teaspoonful dose, 4*d.* per ounce = 2*s.* 8*d.*, add 6*d.* for dispensing = 3*s.* 2*d.*

If a customer getting his 8-oz. mixture for 1*s.* 6*d.* says he would like half the quantity, he still pays 6*d.* for the dispensing and 1½*d.* per ounce for the materials, making half a 1*s.* 6*d.* mixture cost 1*s.* In like manner doubling the 1*s.* 6*d.* mixture makes the price 2*s.* 6*d.* I do not set this forth as perfect in detail or as suited to different circumstances, but I think the rule is good in principle, and with me it has proved generally satisfactory in practice, and if any question regarding price is raised by the customer it gives us an opportunity of showing that we are guided by a reasonable regard for work and responsibility.

The scientific progress of pharmacy, which is the primary consideration with the Conference as a body, depends greatly upon the material and social progress of the individuals of which the Conference is composed; and equally upon the material prosperity being dependent upon the scientific progress of the individual.

Thus, as a scientific corporation we may rejoice at the trade difficulties which bring trouble to us individually, because they are a probable source of future improvement by bringing about the dissociation of miscellaneous trade from the practice of pharmacy.

Nothing aids the acquisition of knowledge so much as finding it useful day by day. Such practical use of information is an inducement to study, an aid to study, and a reward for study.

The report on pharmaceutical education shows that twice as many candidates fail in the theoretical part of the examination as in those branches which necessarily form part of their daily work.

There could scarcely be a better evidence of the value of this daily use of knowledge as a factor in the acquisition of that thorough familiarity with a subject which renders the knowledge of practical value and gives to it a readiness for use when called for.

On the other hand it is shown in the report that the greatest number of failures are in chemistry, a science depending so much upon the conjoint operation of thought and work, and of which it is so difficult to acquire even an apparent knowledge by rapid cram.

If this is the result while the candidate is working under the stimulus of a prospective examination, what can we expect of the chemistry of those who, having passed their examinations, feel that they have no further need for the knowledge of these theoretical things?

The life of knowledge is in the value of its application.

Where is the inducement to a man to study pharmacy if the prospect of his reward is 1*s.* or 2*s.* per day for dispensing? I think it a mistake to expect any average man to devote himself to any study—especially such studies as pharmacy and materia medica, if he lives in the country, or botany if he lives in the town—unless he can see and feel the advantage to his material welfare.

Of those claiming the title of chemist and druggist, probably not more than half will make above 5 per cent. of their incomes by dispensing, and 10 per cent. by the sale of articles to be used for medical purposes exclusive of proprietary medicines. It is probably only under the most favourable conditions that more than half the turnover is yielded by these two items.

Even the most select businesses indulge more or less in druggists' sundries and secret nostrums—nostrums in which the quackery is of the more refined and genteel kind, but is not absent.

The progress of pharmacy is not likely to be satisfactory till the practice of pharmacy together with the trade in articles of materia medica affords a comfortable subsistence to those who devote themselves to it, without the necessity of half the pharmacist's energies being devoted to matters in which pharmaceutical lore is of no avail.

So long as the practice of pharmacy occupies a subordinate position in the material interests of the chemist and druggist, so long will education in pharmacy be generally regarded as a mere means of passing an examination with the object of acquiring a status—a status which though legal is little better than nominal.

The examination being passed, the fruits of study are disregarded and forgotten, for want of habitual use for them. It is only when the practical advantages of what we have learned are daily felt that education worthy of the name will become the rule and not the exception.

In conclusion let me put the pith of my paper into the statement that he is a benefactor to his kind who can make one pharmacist grow where two grew before.

PHARMACY IN GERMANY IN 1555.—Before pharmacies were thought of the dispensing of medicines was in the hands of the clergy. One of the first pharmacies was in Halle (Prussia). It still exists, and is known as the Lion Apotheke. It was established in 1555 by Wolf Holzwirth, under the patronage of Archbishop Sigismund, which dignity prescribed at the same time a kind of prohibitive law for the inhabitants of Halle, which ran as follows:—Be it enacted that: No one in our town of Halle openly or secretly prepare or sell confections, tablets, ointments, plasters, fats, or things made with sugar, such as simplicia or composita, decoctions, tiriac, colloquintida, or other substances which belong to the exclusive privilege of the apothecaries.

Pharmaceutical Society of Ireland.

COUNCIL MEETING, SEPTEMBER 7, 1881.

PRESENT:—Dr. Aquilla Smith, Vice-President; Messrs. Allen, Brunker, Collins, Draper, Grindley, Hayes, and Pring.

The minutes of the meeting of August 3 were read and signed.

Read a letter from the Pharmaceutical Society of Great Britain to the President, asking the Council to appoint two Pharmacists to represent Ireland on the International Pharmacopœia Commission.

Mr. HAYES remarked that he had received a note from the President, stating that any gentlemen appointed should be prepared to visit Brussels.

The VICE-PRESIDENT considered it would be well to postpone the appointment of delegates until next meeting.

Mr. DRAPER also thought postponement would be desirable, and further consideration of the subject was therefore deferred.

The PRESIDENT being absent had sent to the Registrar the following copy of a letter which he had addressed to the Editor of the *Daily Express*, in reply to a leading article in that journal on the late poisoning case at Limerick. The letter had not been published, but the President wished it to be laid before the Council:—

To the Editor of the "Daily Express."

SIR,—My attention has been called to a short leader in your paper of August 2, in which you associate the late accident in Limerick with certain implied strictures upon the Pharmaceutical Society of Ireland. Whilst deeply sympathising with the relations of Mr. Hone and also with Dr. Bourke, I feel bound, as President of the Pharmaceutical Society, to state that your remarks in connection with that Society were undeserved, and do not apply to the late accident, as no licentiate of this Society by examination was concerned in the case.

I quite coincide with your views about the use of bottles of a distinct form for the storing of poisons, and I am sure the Pharmaceutical Society would be very pleased in helping to remodel the laws in this respect; but you are in error in supposing that, as the law exists, there is any provision rendering it imperative to keep poisonous preparations in peculiarly-formed vessels.

I remain, sir, yours truly,

Dublin, August 4, 1881. C. R. TICHBORNE.

Mr. HAYES believed the letter had been sent too late, after a second leading article had appeared, and was therefore rejected. Mr. ALLEN considered it should be published. Mr. HAYES said it would show the members that their President was not asleep, but was looking after their interests. Mr. BRUNKER thought it would be well to have the letter placed upon the minutes for future referenee. The VICE-PRESIDENT then ordered it to be inserted upon the minutes.

A letter from a member, complaining of breaches of the Act and containing certain evidence, was directed to be replied to stating the evidence was insufficient.

Mr. ALLEN proposed the following resolution:—

> That the thanks of the Council of the Pharmaceutical Society of Ireland be conveyed to the Council of the Pharmaceutical Society of Great Britain for the courteous and hospitable reception accorded to the representatives of this Society at the International Pharmaceutical Congress in London, and to express its sense of the personal attention and kindness shown to each delegate.

Mr. DRAPER, in rising to second the motion, said the resolution expressed, as shortly as possible, the feelings of the delegates. Nothing could exceed the attention paid to each representative, and the word "personal" exactly expressed the manner in which they were received.

The VICE-PRESIDENT had much pleasure in putting the resolution to the meeting, and was extremely glad that such a motion had been proposed. He had himself frequent experience of the attentions and hospitality of the Pharmaceutical Society of Great Britain.

The motion then passed unanimously.

The new form of certificate on parchment was then considered. Mr. BRUNKER considered the design most inartistic. Mr. DRAPER agreed, and thought it no improvement on the present one. After some discussion, it was proposed by Mr. BRUNKER, seconded by Mr. ALLEN, and passed,

> That the proof of form of certificates submitted is not such as should be accepted by the Council, and that Mr. Brunker, Mr. Draper, and Mr. Allen be requested to report to the Council at the next meeting.

Mr. Michael J. Fottrell, 70 Kenilworth Square, Rathgar, was proposed for membership by Mr. Hayes, seconded by Mr. Brunker.

The meeting then adjourned.

American Pharmaceutical Association.

THE twenty-ninth annual meeting was held in Kansas City, Mo., August 23–25, and was attended by nearly 150 members, many of them coming from 1,400 to 2,000 miles The meeting was called to order by Vice-President George H Schafer, of Iowa, in the absence of the President, J. T Shinn, of Philadelphia. An address of welcome was given by Col. Twitchell, of Kansas City, and Mr. R. J. Brown, of Leavenworth, Kansas, followed with a brief welcome, after which the Vice-President delivered the annual address. The Committee on Credentials reported the list of delegates accredited to the meeting, and shortly after each delegation named one of its members as a member of the nominating committee, and to this five others were added by the presiding officer. The reports of the several committees were read by title, after which the secretary of the Council read the minutes of that body since the last annual gathering, and he then presented the names of 62 persons for membership. A vote of thanks to Vice-President Schafer for his excellent address, and the appointment of a committee of three to consider the recommendations contained in the address, was followed by the appointment of a Committee on Exhibits, and the session then adjourned.

The second sitting was held on Wednesday morning at 10 o'clock, and, after the routine business, the report of the Committee on Nominations was called for and read, after which a ballot was ordered, which resulted in the election of the following officers for the ensuing year:—

President—P. W. Bedford, New York.

Vice-Presidents—Emlen Painter, San Francisco, California; George Leis, Leavenworth, Kansas; John F. Judge, Cincinnati, Ohio.

Secretary—John M. Maisch, Philadelphia.

Treasurer—Charles A. Tufts, Dover, New Hampshire.

Reporter on Progress of Pharmacy—E. Lewis Diehl, Louisville, Kentucky.

The members of the various standing committees were re-elected, and of the members of the Council whose term of office expired two were re-elected, and J. L. Lemberger, of Lebanon, Pa., was the newly-elected member.

Being appointed by the Chairman for this duty, Mr. Bullock, of Philadelphia, and Lewis Diehl, of Kentucky, conducted the newly-elected President to the chair amid the applause of the Association, which stood the while. Mr. Bedford was introduced and spoke as follows:—

THE INAUGURAL ADDRESS.

Gentlemen and members of the American Pharmaceutical Association, I sincerely thank you for the honour which has with such harmony and unanimity been conferred upon me. As I look back upon the first gathering of this Association, which I attended in Boston in 1859, and its yearly recurrences, which I have missed but twice since that date, I count many of the greatest pleasures of my life bound with this Association and the many kind friends I have made and known through its gatherings. It has not only been the many pleasures we can thus recount, but the many springs of scientific knowledge which have here been opened—the growth of intellectual and scientific advancement. But the great strides which our profession has taken in developing the work of pharmacy and pharmacists, is one of the delightful phases which has grown out of this Association. It has been the forerunner of similar organisations abroad and the great developer of local organisations everywhere throughout our land. It has been the mainspring which has secured the enactment of intelligent and wise pharmacy laws in our

States, and will always be looked to as having contributed the soundest principles and details on which such laws in both the past and the future shall derive their main value.

This Association has done more to advance true pharmacy than any other influence that can be named. My earnest wishes and efforts have always in the past been given to its interests and its extension, and in the future shall never be extinguished till life's labour is done.

In the conducting of duties as they devolve upon me for the time I shall fill the position you have so generously called upon me to assume, I will endeavour to do my best to promote the welfare of this Association. I shall ask your aid in this work, by prompt action upon all matters which are brought before you, to avoid needless arguments or a waste of precious time, and trust that all our proceedings may be harmoniously conducted, with the disinterested motive that our neighbour is entitled to the same regard that we have for ourselves.

That this meeting in the border city may be of great benefit and enjoyment to the many brethren who can more conveniently attend it on this occasion than when in the Eastern cities, and that it may awake the spirit of emulation among the pharmacists of the Western portion of our fair land, is, I am sure, the desire of those whose familiar faces we miss to-day, as well as of those who have travelled long distances to greet our brethren in their newer homes.

I will detain you no longer than to add my wish that this meeting will accomplish much good for our profession, and that those who are with us for the first time will in the future make efforts to aid us by their presence and their labours.

This address received the earnest attention of the Association, and the speaker sat down amid applause.

A motion of Mr. Schaefer to appoint a committee of two to introduce the Vice-Presidents was carried, and W. S. Thompson, Washington, and William Saunders, London, Ont., were appointed such committee by the chair. The committee did its duty, conducting the Vice-Presidents to their places amid great applause, the Association again standing.

Mr. Leis addressed the Association, thanking them for the honour conferred. When he had concluded, Mr. Judge took the floor and did likewise.

The proceedings of the Council were read by its secretary, and its acts endorsed by the vote of the Association, after which some communications were read, and the reading of reports of committees followed The Committee on the Drug Market presented by its chairman, Mr. L. Lehu, gave a *resumé* of the fluctuations of drugs and chemicals during the past year, with some interesting comments.

The report on legislation, by J. M. Maisch, stated that in Massachusetts, New York, and Pennsylvania, the efforts to secure the enactment of pharmacy laws have failed, while in the States of Connecticut, Illinois, Missouri, North Carolina, and West Virginia, success had been met, and that the laws were ready for operation.

Allusion was made to the fact that in New York and New Jersey special laws had been secured to punish the adulteration of food and drugs.

Professor Maisch also reported as Secretary that the modifications of the by-laws intrusted to him had been attended to. After some further business was transacted a recess was taken till afternoon, and the members visited the exhibition hall.

Third Session.

On reassembling at three o'clock, and after the disposal of routine business, a motion was made for the appointment of a committee on time and place for the next meeting, and being adopted the chair appointed such a committee, consisting of William Saunders, London, Ontario; Charles Huston, Columbus, Ohio; and William H. Rogers, Middletown, New York. After some discussion, the chair announced that "papers and queries" were now in order, and the first one presented was by Prof. E. L. Patch, of Boston, Mass.

On the Presence or Absence of Tannin in Gentian.

The paper was an exhaustive essay on previous literature of the subject, and detailed numerous careful experiments for determining more positively whether tannin was present in gentian, but the writer concludes that while he was unable to positively determine the subject, his experiments lead to the conclusion that some analogous substance is present, and that many of the reactions are quite similar to those of tannin. In the discussion which followed, Prof. Maisch stated that when the precipitate obtained from gentian by gelatine was thoroughly washed in water until all soluble portions were removed, the residual precipitate did not discolour with the salts of iron, which to his mind was conclusive proof that tannin was absent. He also alluded to the reactions of gentisic acid, and said it was possible that when this was not properly purified, that it might have led some experimenters astray. The discussion was continued by Mr. G. W. Kennedy, who alluded to some experiments made with gentisic acid from Frasera Walteri. Mr. J. M. Lloyd remarked that he had operated on large quantities of gentian in order to secure for Prof. Patch the several constituents of gentian. The concurrent evidence of Prof. Patch, Prof. Maisch, and Prof. Lloyd, is that while tannin is not present in gentian, it does contain a substance which is somewhat similar in some of its reactions.

A paper by Charles Rice, Ph.D., on

The Most Desirable Melting-point for Petroleum Ointment.

After stating his own experience in the use of petroleum ointments, and briefly expressing the collated opinion of many physicians whom he had had correspondence with on the subject, and also setting forth the views of numerous pharmacists, he says the practical force of the question is, whether it is desirable that more than one petroleum ointment be made official in the next revision of the Pharmacopœia. This was elaborated on, explaining the reasons offered by advocates on both sides, but the conclusion of the writer is that only one petroleum ointment should be made officinal, and that this should have the melting-point of 104° F. Discussion ensued, in which W. O. Thompson preferred that the physical properties should be fully described, but he thought that the present articles in the market, having a somewhat lower melting-point, should be more nearly approximated by the officinal article. After some further remarks, a motion was offered "That it is the sense of this meeting that but one petroleum ointment should be made officinal, and that it should have a melting-point of about 104° F.," and the motion was adopted. Some further discussion was had as to whether nitrate of mercury ointment could be successfully made by using only petroleum ointment. This discussion was participated in by several members, and the general opinion expressed was that, unless some animal or vegetable fat was present, a good unguent could not be obtained. It was finally proposed as a matter of investigation for the coming year whether the medicinal effects of nitrate of mercury ointment could be obtained satisfactorily where the solution was held in mechanical division only.

Mr. George W. Kennedy read a paper on

Jaborandi, and the Best Methods of Preparing the Fluid Extract, also for Preparing its Active Principle (Pilocarpine).

In answer to this the writer states that 75 per cent. alcohol is the best menstruum for extraction of the medicinal value of the drug. To make the fluid extract he advises that for 16 troy oz. of the drug in fine powder, it be moistened with 8 fluid oz. of alcohol (of 75 per cent.), the drug packed in a percolator, and with the usual precautions; the first 14 fluid oz. are reserved, the balance of the percolate (until the drug is exhausted) is evaporated to 2 fluid oz., and mixed with the reserved portion, making 16 fluid oz.

To extract pilocarpine, the writer recommends that the finely-powdered jaborandi be treated by percolating it with water acidulated with one fluid drachm of muriatic acid to a pint of water, and obtaining not less than two parts of percolate for each part of drug used; evaporate this to a soft extractive consistence; mix with enough water to admit of filtration; add bicarbonate of soda in slight excess; and to the liquid add chloroform, in equal bulk to the filtered liquid; shake frequently during ten hours; draw off the chloroformic solution, and let it evaporate spontaneously. Redissolve the residue in chloroform, filter, and let it

again evaporate spontaneously. Pilocarpine is a soft, gelatinous mass, non-crystalline, but producing with mineral acids crystallisable salts. The writer gave a list of reactions with various reagents. After some further discussion, the meeting adjourned to Thursday morning.

FOURTH SESSION.—*Thursday Morning*, August 25.

The meeting was convened promptly, and after the opening routine business, the Association was called upon to discuss some amendments which had been proposed at previous sessions. One amendment was that each application should be accompanied by the initiation fee and one year's dues, and this was adopted. Another amendment was that offered by Professor Markoe, that the officers elected shall take their respective offices at the closing session of the annual meeting. The amendment was opposed by Professor Maisch in a few remarks, and on his motion the matter was indefinitely postponed.

The reading of papers being next in order, a volunteer paper by Louis Dohme, of Baltimore, on

Soluble Phosphate of Iron,

was read. This paper suggests the use, in place of the insoluble slate-blue powder of phosphate of iron now in use, of a soluble scale salt, which is as soluble, stable, and tasteless as the pyrophosphate of iron. Two formulæ were given for the preparation, one producing the ordinary phosphate by precipitation, and dissolving the washed precipitate by means of citrate of sodium. The simpler method of preparing it from admixture of the definite salts is appended.

Take of—

	Parts
Citrate of iron	6
Phosphate of sodium (pure)	7
Distilled water, a sufficient quantity.	

Dissolve the citrate of iron in 12 parts of water by heating in a water-bath. To this solution add the phosphate of sodium, and stir constantly until dissolved. Evaporate at a temperature not above 140° Fahr. to the consistence of thick syrup, and spread on plates of glass, so that the salt when dry may be obtained in scales. This salt contains 12 per cent. of iron, is definite in its composition, and both therapeutically and pharmaceutically is satisfactory to all who have used it. In a brief discussion which ensued, the new pharmaceutical candidate was well spoken of by several who had had some practical acquaintance with it.

The President said that the Committee on Exhibits desired to be reorganised, as two of the active members were invalids temporarily, and the motion being made and adopted, he named as the new committee, J. D. Wells, Ohio; T. Roberts Baker, Virginia; W. O. Thompson, Washington, D.C.; C. A. Weaver, Iowa; J. H. Wilson, Illinois.

Mr. E. B. Stewart, of Chicago, Ill., read a very able and interesting paper on

The Microscopic Examination of the Rhizoma of Apocynum Androsæmifolium, and of Apocynum Cannabinum.

The paper was accompanied by enlarged plates, showing the arrangement of woody fibre, starch cells, bast cells, pith, corky layer, &c., of each, and showing readily the distinctions of each variety. The paper was well received, and in explanation of the fact that in some places these roots are sold the one for the other, it was said by William Saunders that *Apocy. androsæmifolium* was very abundant in Canada, and, as Mr. Lloyd said, it could scarcely be found in Southern Ohio, while the *A. cannabinum* grew in the latter section abundantly, but was scarcely found in Canada; it only corroborated the statement that the *A. androsæmifolium* was essentially a northern plant, and the *A. cannabinum* a southern grower. In most of the cities they are sold indiscriminately. Discussion continued by Professor Maisch, who said that only the *A. cannabinum* was found in the vicinity of Philadelphia. A vote of thanks was returned to Mr. E. B. Stewart for his excellent paper.

The remaining part of the session was occupied with business discussion, and adjourned to meet at 2.30 P.M.

FIFTH SESSION.

The meeting was called to order, and when the preliminary business matters were disposed of, a paper, by Mr. H. E. Griffith, of Niagara Falls, on

Emulsions,

was read. The emulsifier preferred by the writer was powdered tragacanth; the sample made in accordance with the formula given appeared to be a very satisfactory emulsion.

Following this Mr. Charles B. Allaire, of Peoria, Ill., read a paper on

The Use of Grape Sugar in place of Cane Sugar, Honey, and Glycerine in Pharmaceutical Preparations.

The writer gave a very full account of experiments made to test the practical utility of grape sugar, but most of the results were of a negative character. The lack of sweetness, the impossibility of making as dense a syrup as from cane sugar, and the fact that many syrups prepared with it do not seem to keep as well as similar syrups made from cane sugar, do not seem to show that grape sugar can be satisfactorily substituted for cane sugar in pharmaceutical preparations. As an excipient for pill-making it is an admirable article. Following this Mr. A. E. Ebert, in reply to some inquiries, gave a very interesting account of the manufacture of grape sugar, and the glucose or syrupy form which is more properly called dextrine syrup, as it contains a large quantity of unaltered dextrine.

Mr. George W. Sloan, of Indianapolis, Ind., read a paper in reply to a query—

What solutions of poisonous substances usually prescribed in small amounts is it desirable to keep ready prepared in the prescription case? What strength of each is most convenient? Name the menstruums?

A practical reply by the writer stated that for several years he had kept such solutions on hand, making them with care, in moderately small quantities, so that they were not retained on hand too long, using distilled water, excluded from light, in small bottles and in a cool place. Under these conditions he had had no difficulty in keeping such solutions and dispensing them with entirely satisfactory results. Not only did he keep solutions of poisonous articles, but also those of deliquescent character, such as acetate of potassium, chloride of zinc, and similar articles. The object of such solutions in his case was to facilitate dispensing of such articles, as also to insure greater accuracy. The following table, taken from his essay, may be of interest to your readers:—

Article	Solvent	Strength
Chloral hydrate ..	Water	3j. in f. 3j.
Corrosive sublimate ..	Alcohol	gr. j. in f. 3j.
Chloride zinc	Water	gr. ij. in f. 3j.
Atropia sulph. ..	Water	gr. j. in f. 3j.
Duboisiu	Water	gr. j. in f. 3j.
Eserin sulph.	Water	gr. j. in f. 3j.
Strychnia sulph. ..	{ Alcohol, 1 part } { Water, 3 parts }	gr. j. in f. 3ij.
Calcium bromide ..	Water	3j. in f. 3j.
Zinc bromide	Water	3j. in f. 3j.
Lithium bromide ..	Water	3j. in f. 3j.
Potassium acetate ..	Water	3j in f. 3j.
Potassium iodide ..	Water	3j. in f. 3j.
Potassium bromide ..	Water	3j. in f. 3ij.

To this list might be added many others, but this will suffice to show the plan adopted with great success and satisfaction. Some discussion on this paper elicited the opinion that in articles where organic acids or bases were kept in solution there was danger of cryptogamic growth, and several instances were mentioned.

The next paper which followed was one by Professor J. U. Lloyd on

The Characteristics of the Several Varieties of Senega Root in Commerce.

This paper was esteemed one of the best presented during the meetings of the A.P.A., and too great praise cannot be awarded to its author for his untiring zeal and energy in his investigations. Every species that has ever been found in the market has been sought out, its origin defined and described, and all the peculiarities of each

noted. No abstract can do this paper justice, and doubtless you will prefer to print the paper in full when it is possible to do so. The paper was illustrated by specimens of the several varieties (in some cases several pounds were shown) and by botanical specimens of the entire plant. Professor Maisch and William Saunders participated in the discussion which followed, and there can be no doubt that this paper and the discussion have brought out more definite information about Senega root in all its modifications and varieties than has before been known.

Professor Remington read a paper by P. W. Bedford on

Commercial Phosphate of Sodium and its Impurities.

The writer stated that when he accepted the query he was not aware that the subject had been already reported on by Mr. G. W. Kennedy, who, in a paper read before the Pennsylvania Association, had given the results of examination of six brands then in the market, all of which contained large quantities of sulphate of sodium, varying from 25 to 60 per cent. of this impurity. The writer examined numerous specimens during the year, and found the same impurity in quantities varying from 19·5 to 57·5 per cent. It would seem, therefore, that there is not a single commercial variety of this salt to be had of sufficient purity to make any of the pharmaceutical preparations unless previously recrystallised or purified.

Mr. E. B. Stewart read a paper, by Professor Bastian of Chicago, on "Cypripedium," and illustrated the same with an enlarged microscopic diagram.

Mr. J. U. Lloyd presented a paper on

Precipitates which Occur in Fluid Extracts,

and the same was read by Mr. William Saunders, at the request of the writer. This paper fitly supplemented a very valuable one by the same author, read at the Indianapolis meeting, and fully sustains the excellent reputation of Mr. Lloyd as a careful and accurate observer. It would hardly be justice to the paper to make an abstract of it, and it is worthy of entire publication in your valuable journal. The remarks which followed the reading of the paper evinced the high appreciation of its practical value, and the author was the recipient of a special vote of thanks for his valuable contributions.

Mr. C. S. Hallberg, of Chicago, followed with a paper on

Powdered Medicinal Extracts.

His paper detailed numerous experiments, and we may summarise it as follows:—The yield of extract from the same drug will vary largely, as the solvent liquid contains more or less water, therefore the yield of the solid extract varies greatly, and cannot be a fair guide as to the strength of the drug itself. If, however, the drug is made the starting-point, he argues that the product made to bear a relative strength to the drug itself yields a more uniform standard. He, therefore, proposes that from certain classes of drugs their active matter should be extracted, evaporated, incorporated with powdered milk sugar, so that the finished product shall bear the proportion of one-half the weight of the original drug, thus giving the powdered medicinal extract double the strength of the drug in form of powder. The yield of most extracts varies from 10 to 25 per cent. of the weight of drug used, but this plan proposes in most cases a product equal to 50 per cent. of the drug. The paper was well received, and Professor Remington said that the conclusions of the writer were quite similar to those he had heretofore advocated, more especially before the Pharmacopœia Committee, and for which, as a new class, he had proposed the name "Abstracta."

Mr. T. J. Covell, of Marshalltown, Iowa, sent a paper on

Spiritus Odoratus,

A proposed Cologne water, intended as a desirable candidate for the Pharmacopœia. The formula is as follows:—

Oil lavender flowers	½ oz.
Oil rosmary	¼ oz.
Oil neroli petitgrain	1½ oz.
Oil neroli bigarade	1½ oz.
Oil lemon-peel	1½ oz.
Oil orange	2½ oz.
Oil bergamot	2½ oz.
Oil rose geranium	½ oz.
Tincture styrax	2 oz.
(all by weight)	
Deodorised alcohol	26 pints
Orange-flower water	6 pints

Mix.

Mr. R. J. Brown, of Leavenworth, Kansas, sent a note stating that he had intended sending a paper giving a classified list of all the medicinal plants growing in Kansas, but the paper was not sufficiently completed to offer it at present. On motion the consent of the Association was given that it could be handed to the Committee on publication hereafter. After some business motions the Committee on time and place for the next meeting made their report, naming Niagara Falls, N.Y., as the place, and September 13 as the time for the next annual meeting, and it was agreed to by an almost unanimous vote. Subsequently Mr. Hiram Elijah Griffith, of Niagara Falls, was elected Local Secretary. The final hour of the session was occupied in some remarks on conduct of future meetings, in presentation of votes of thanks, and other business matters. The final adjournment then occurred, and the sessions were at an end for the year.

This year the Council really began its work, and the sessions just closed have proved the wisdom of separating the purely routine business, and so allowing more time for the discussions of papers. It may be well here to say that the reports of some of the officers and committees are made to the Council, and so do not come before the general assemblage. The report of the Treasurer gives a much more gratifying account than it presented three years ago. This is due largely to the efficient service done by the Committee on New Membership, and in part to some other efforts in another direction. The report on legislation stated that in a few States good work had been accomplished, while in others it has been defeated; it, however, is making headway, and in a few years hence there can be no doubt that pharmacy laws will be in force in most of the States.

The increase in membership is quite marked. Last year, through the energy of the special committee, about 150 were added, and the present year as many more became members at the recent meeting.

To your readers the distance travelled by some members who attended this meeting may seem somewhat curious, but the fact that some members resided over 2,000 miles distant from Kansas City, that a party of over 50, including ladies, made the journey from New York City and return (over 2,800 miles), and that in addition to this many went for a pleasure trip to the Rocky Mountains and return, fully 1,400 miles more, while another portion of the members and friends went to Santa Fé, New Mexico, and return, a still greater distance, may at least give your readers in England some idea that our land covers a larger portion of the globe than an English-made atlas is usually wont to represent. To reach the meeting the writer passed through New York, a portion of Canada, Ohio, Indiana, Illinois, Missouri, and on the return in addition he passed through Iowa, Michigan, and Pennsylvania; any one of these States is larger than England, and yet our journey did not reach half-way across our continent. [Steady, Eagle!]

A feature of the meetings of this organisation are the annual exhibits of drugs, medicines, chemicals, apparatus, and the varying articles that grow out of the necessities of our vocation. I can only ask sufficient space to say that the largest available room in Kansas City, a room about 50 by 100 feet square, was crowded with one of the most beautiful and imposing displays of this kind ever made in the country. It was a sight which was novel and attractive in this portion of the country, and it can only be added in this connection that the exhibit was worthy of the exhibitors. It were impossible to name any, or even to attempt any description of the exhibit, as to do justice to it would need entirely too much space. Let it suffice to say that this was a most elegant display, that it was a splendid educator to many, and that in every respect it was a success.

Only one topic more—the weather! We had weather, and to spare. The thermometer marked 105° Fahr. for several hours during some of the days we were in Kansas city. Yet we stood it all, that we might add our modicum to the advancement of pharmaceutical knowledge.

THE INTERNATIONAL MEDICAL AND SANITARY EXHIBITION.

THE results of the Exhibition held during four weeks at South Kensington seem to have been satisfactory to its promoters. The total number of visitors, allowing one visit each for season-ticket holders, was 24,333.

During the last day the secretary, Mr. Mark Judge, visited the different exhibitors for the purpose of ascertaining their opinion as to the success of the Exhibition. The exhibitors generally expressed themselves as well satisfied with the result, some going so far as to say that they had done an exceptional amount of business, owing to the fact that a very large proportion of the visitors had been either medical men, architects, or engineers. The representatives of the exhibitors who had been in daily attendance during the Exhibition marked their appreciation of the arrangements made for their convenience by presenting a small purse of gold to the superintendent, Mr. Smithson.

The long-deferred awards in Section 7 (drugs, disinfectants, dietetic articles, and mineral waters) were made known on the last day of the Exhibition. As we explained last month, it was understood that the delay was occasioned by disagreement between the medical and pharmaceutical judges. We did not get these awards into our last number, and therefore publish them now.

SECTION 7.—*Drugs, Disinfectants, Dietetic Articles, and Mineral Waters.*

JUDGES.—E. Buchanan Baxter, M.D.; Dr. Robert Farquharson, M.P.; Thomas Grecnish (Pres. Pharm. Soc.); Thomas Hyde Hills; Professor T. Redwood; Peter Squire.

FIRST CLASS.

Allen & Hanburys, drugs and dietetic articles.
Battley & Watts, pharmaceutical preparations.
Brand & Co., dietetic articles.
Bush, W. J., & Co., essential oils.
Calvert, F. C., & Co., carbolic acid, and preparations of it.
Cheseborough Manufacturing Company, vaseline.
Corbyn, Stacy & Co., drugs and dietetic articles.
Foster & Gregory, hypophospbites and other pharmaceutical preparations.
Kirby, H. & T., & Co., drugs and dietetic articles.
Macfarlan, J. P., & Co., preparations of morpbia and other alkaloids.
Martindale, William, pharmaceutical preparations.
Mottershead & Co., medical dietetic articles.
Merck, E., mediciual preparatious.
Morson, T., & Son, chemical and pharmaceutical preparations.
Price's Patent Candle Company, glycerine.
Savory & Moore, drugs and dietetic articles.
Smith, T. & H., & Co., opium products and pharmaceutical preparations.
Zimmerman, A. & M., Schering's (Berlin) chemicals for medical use.
Zimmerman, A. & M., Goedecke's (Leipsic) chemicals for medical use.
Zimmerman, A. & M., Brunswick Quinine Company's salts of quinine.

AWARDS OF MERIT.

Abbott, G. Van, Gluten bread and biscuits.
Aesculap Bitter Water Company, natural mineral waters.
Apollinaris Company, Hunyadi Janos water.
Arsenical Water Company, of Court St. Etienne, arsenical mineral waters.
Aylesbury Dairy Company (Limited), Koumiss and peptonised milk.
Blake, Sandford & Blake, medicinal mineral waters.
Bonthrou, J., gluten bread and biscuits.
Burgoyne, Burbidge & Co., pharmaceutical preparatious.
Canzuch Brothers, pharmaceutical preparations.
Condy's Fluid Company, Falcon Street, E.C., disiufectauts.
Corsan, J. R., method of marking glass by sand-blast.
Eckell, W. F. W., medical dietetic articles.
Evans, Lescher & Webb, pharmaceutical preparatious.
Fletcher & Fletcher, pharmaceutical preparations.
Gale & Co., pharmaceutical preparations.
Gallais, E., Rakoczy aperient water.
Hoff, M. & Leopold, malt extract, and preparations of it.
Hurst, T. T., & Co., Purton natural mineral water.
Jeyes' Sanitary Compounds Company, disinfectants.
Kopfs' Extract of Meat Company, dietetic articles.
Liebe, J. Paul, medical dietetic articles.
Loeflund, E., malt extracts.
Mackey, Mackey & Co., pharmaceutical preparations.
Maltine Manufacturing Company, maltine.
Newman, S., malt extracts.
Richardson, John, & Co., pharmaceutical preparations.
Sanitas Company, sanitas, and preparations of it.
Schieffelin, W. H., & Co., coated pills and granules.
Société Générale des Produits Raoul Bravais, pharmaceutical preparations.
Southall Brothers & Barclay, pharmaceutical preparatious.
Stevens, H. K., Flitwick natural mineral water.
Ulbrich, Anton, Pulna natural mineral water.
Valentine, Mann S., dietetic articles.
Warner & Co, pharmaceutical preparations.
Wyeth, John, & Brother, pharmaceutical preparations.

THE OPIUM MARKET.

LETTERS FROM SMYRNA.

THE following information on the opium market was received from a well-known Smyrna merchant just after our last publication. It was dated August 6:—

Opium crop this year immense—never known so large. Prices in consequence very low, to-day averaging 12*s.* per lb. f.o.b.—that is, 11*s.* 6*d.* for current, 12*s.* for druggist, and 13*s.* for soft shipping. We may have rather lower prices yet, but temporarily. A reaction is sure to occur by wintertime; there will be rumours, and most likely positive facts, of destruction on a large scale of all winter sowings. We rarely, if ever, have two conseeutive large crops, and this year there is plenty of grain, and peasants will prefer to sow wheat to poppy, which at to-day's prices barely pays them to collect. Last year the natives were starving, and had no corn and barley seed to sow, consequently the poppy was largely, nay, extensively, sown, in consequence of last year's very high prices. It is, therefore, my belief, and I would recommend all those who deal in the drug to pay attention to this, that notwithstanding our enormous crop, prices will recover from the present low rate, if not during the summer and autumn, during the winter.

Scammony will be very scarce; people are afraid to go and collect it, the country being so infested with marauders. Pure village virgin scammony, yielding 80 to 85 per cent. of resin, will be procured with difficulty, and will cost 40*s.* per lb. f.o.b., if not more. Secondary qualities will be more abundant.

Scio Turpentine.—None this year.

The following is from Messrs. Barry & Co., dated September 1:—

As we stated in our last, the market at the beginning of August had somewhat lost its activity, and business began to drag in anticipation of large arrivals. A depression in price was the consequence, and had this condition lasted we should have had to report a reduction of 3 or 4 per cent.

During the second week of the month purchases were sufficient to keep up the prices, but in view of the heavy arrivals sellers were rather eager to transact business.

The second half of the month has been marked by some traces of excitement in the market consequent on the resistance of holders of good qualities in the interior to the reduction which buyers here wished to impose upon them. Further it was found that several parts visited showed about 50 per cent. of Chiquinti and very inferior qualities.

This condition has become still more accentuated, and advance in prices has prevailed in consequence, the presence of buyers for all countries rendering holders more and more tenacious. The buyers, at first reserved, have ultimately had to submit to the demands of sellers, and the operations of the past 10 days indicate an advance of 5 to 7 piastres the chequi over the prices previously established.

The market closes at the end of August with the same firmness at 115p. for Carahissar, 112p. for second, and 118p. to 120p. for Yerbi. Some holders demand still higher figures, but for the moment buyers do not seem inclined to meet them.

The total sales since the opening of the campaign have been 2,132 cases of good opium, 421 cases of "talc-quale," and 150 of chiquinti. The arrivals amount to 3,506 cases, against 2,966 in 1877, the year of a crop of 9,450 cases. Of old and new goods altogether 2,204 packages of various weights have been despatched.

P.S., September 2.—We open this to inform you that some buyers who had to fulfil engagements have had to pay

yesterday and to-day 120p. for 40 cases, all Carahissar. Since then the market has assumed a rather weaker tendency.

THE MEDICAL CONGRESS AND AN INTERNATIONAL PHARMACOPŒIA.

THE subject of an International Pharmacopœia was brought before the section on Materia Medica and Pharmacology in a paper by Professor Eulenburg, of Greifswald. The author reviewed the previous efforts towards the accomplishment of the end in view which had been made both in the Medical and Pharmaceutical Congresses of the past. He suggested for consideration the following points:—Language, intimating his preference for Latin, official translations to be permitted. Names of medicines to be in Latin, adding the vernacular synonyms. Weights and measures; the French system to be adopted, and the Centigrade scale for temperatures. Nomenclature; strict uniformity in botanical and chemical names, molecular formulæ being added in the case of the latter. Arrangement; query alphabetic or systematic, or a combination of both. Contents; to be limited to remedies of high importance? Uniform regulations as to purity, tests, and doses? If agreement were reached on those points, it was desirable that the whole Congress should use their influence to promote uniformity in all national Pharmacopœias.

This paper gave rise to an animated discussion, in which many visitors from the Pharmaceutical Congress took part. Dr. Prosser James, lecturer on materia medica at the London Hospital, said that the difficulties in the way of substituting a single Pharmacopœia—the British—for the three authorities which preceded it in the United Kingdom had been long enough overcome to encourage the advocates of an international formulary. The Pharmacopœia Germanica had also replaced diverse publications with benefit, and, so far as was known, with very little inconvenience. An International Pharmacopœia was only another step in the same direction, and the idea had been endorsed by various Congresses and a certain amount of work done. The dangerous differences existing in the strength of powerful preparations was a strong argument in favour of the movement. If one standard for the most important remedies could be accepted in all civilised countries the gain would be great; not only would prescribing become safer, but pharmacology and pharmacy would advance more rapidly, and a knowledge of the art of healing become more cosmopolitan. Two plans had been suggested for attaining the object: one to restrict the work to a small number of potent remedies in general use; the other to enlarge its scope into something like a universal formulary. The former plan was apparently the easier, but the latter had much to commend it. There were many questions of detail which would have to be considered—the language in which the work should be published, the nomenclature, arrangement, standard of weights, measures, temperature, &c. The sooner such a work was commenced the better, and no body was so competent to appoint a committee for the purpose as the International Medical Congress. The International Pharmaceutical Congress had within the last few days appointed a permanent International Commission to prepare a restricted pharmacopœia of the more potent remedies. It would be well for the Medical Congress to appoint a similar commission to co-operate with them, and even to proceed further and prepare a catalogue of materia medica. In this way steps would be taken which would ultimately lead to the introduction of a universal pharmacopœia. Dr. Rawdon Macnamara pointed out the absolute necessity of adopting the Latin language for the Pharmacopœia, and strongly urged on the section the necessity of petitioning Parliament to make the use of the metric system of weights and measures compulsory. The debate was continued by Professor Bentley, Mr. Greenish, the President of the Pharmaceutical Society, Mr. Schacht, of Clifton, Professor Stokvis, and others, and finally it was resolved to appoint a committee consisting of two delegates from each country attending the Congress, to co-operate with the committee appointed by the Pharmaceutical Congress with the view of taking such steps as might be necessary to draw up a scheme that would ultimately found the basis of an International Pharmacopœia. At a subsequent meeting the following names were submitted for consideration, it being understood that the list was not final, and that it was incomplete:—France: Dr. Dujardin-Beaumetz, and Professor Vulpian, the Dean of the Medical Faculty of Paris. America: Dr. Wood, Professor Austin Flint. Prussia: Professors Leibreich and Rossbach. Holland: Professors Stokvis and Fokker. Switzerland: Professor Prevost. The representatives of Belgium, Italy, Greece, Spain, and Portugal were left to be nominated at a future meeting. For England the representatives would be Dr. Fraser and Dr. Lauder Brunton; and as it was desirable to have some central organisation, the present Council of the Section would continue its existence, although the bulk of the work would probably fall on the Secretaries, Professor Roberts and Dr. Buchanan Baxter. Professor Quinlan, in an amusing speech, urged on the section the necessity for separate representation for Ireland; but Professor Wood stated that if the plea were allowed, he must ask for a representative for each of the United States.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

ON Friday evening, September 2, the opening of the above College was inaugurated by a meeting of the students, when the distribution of the prizes took place. The new College is a clever adaptation of Trinity Chapel. The pews on the ground-floor remain, being fronted by a broad platform, and this arrangement serves the purpose of a lecture-hall. The walls on both sides are hidden by an array of bottles, drawers, and scientific apparatus. The galleries are boarded up round the front, and here the laboratory is fitted up.

The chair was occupied by Dr. Matcham, and an opening address was delivered by Mr. George Wills, in the course of which he expressed his conviction that the suggestions of the Committee of the Pharmaceutical Council on Education to impose extra preliminary requirements on candidates for examination would not be for the benefit of the trade generally.

The report, read by the Secretary, stated that during the session 1880-81 225 students entered the College, of whom 194 presented themselves for examination, 153 of this number passing. Of these 18 passed the Major, 122 the Minor, and 13 the Preliminary examination.

The prizes of the last session, comprising eight medals and 14 certificates, were presented by the chairman. The gold medal awarded for organic and analytical chemistry was gained by Mr. Llewelyn Lewis, and extra silver medal was given to Mr. C. W. Botwood for the special excellence of his paper.

PHARMACEUTICAL SOCIETY OF NEW SOUTH WALES.

Fifth Annual Report, 1881.

THE fifth annual meeting was held at the Board-room, Phillip Street, Sydney, on June 8, Mr. F. Senior, President, in the chair.

The Honorary Secretary, Mr. W. T. Pinhey, read the report:—The Government had promised (through the Colonial Treasurer) that a comprehensive Pharmacy Bill should be laid before Parliament at an early date. Arrangements were being made with Mr. Frederick Wright for the delivery of lectures on chemistry to the Associates and Apprentices of the Society. The (London) Chemist and Druggist was to be presented monthly to each member of the society. It was hoped that employers would afford their apprentices and assistants increased opportunities for study. The books recommended were Proctor's or Redwood's "Pharmacy," Pereira's "Selecta è Prescriptis," British Pharmacopœia, Squire's "Companion," Attfield's or Bowman's "Chemistry," and Bentley's "Botany."

Several members had been admitted during the year. The retiring members of the Council, Messrs. F. Senior and A. J. Watt had been re-elected. The Treasurer's report

showed the gross receipts to be 153*l.* 16*s.* 6*d.*; expenditure, 75*l.* 10*s.* 6*d.* The balance to the credit of the Society stood at 265*l.* 15*s.* 9*d.* The balance-sheet was read by Mr. A. J. Watt, Hon. Treasurer, and, on the motion of the Chairman, seconded by Mr. E. Row, the report and balance-sheet were adopted and ordered to be printed.

The CHAIRMAN then delivered an address in which he quoted with approval much of the address delivered by Dr. Langdon Brown at the opening meeting of the London School of Pharmacy in 1880. He then went on to say that some medical gentlemen in Sydney asserted that there was a large amount of counter practice done in Sydney; but from inquiries he had made he was sure that it was not done by the prominent members of the fraternity, and even then to not near the extent that dispensing was carried on by some of the Sydney medical men. The less counter practice was done the better, as it no doubt, to some extent, encroached on the functions of the medical profession. It must be a great public advantage to have an educated body of pharmacists throughout this large territory who could be readily consulted on the action of medicines, but the more educated in their own branch the slower would they be to consider counter practice one of their functions. The time could not be far distant when medical men would leave all that relates to pharmacy to those whose education has been vouched for by this Society, and when all our Pharmaceutical Societies will take a more important part in the production of the National Pharmacopœia. Pharmaceutists in future will be fewer in number, but of higher culture and more scientific standing. Every candidate for pharmacy as a profession must in future give evidence of thorough qualification. The Bill, then in the hands of the Parliamentary draughtsman, embodied all the important clauses of the Bill which was then being considered by the Pharmaceutical Society of Great Britain; so that, if it passed, they would be almost commencing with advantages which it had taken the home society forty years to obtain.

Messrs. J. A. Rose and W. H. M'Carthy were elected auditors for the ensuing year.

Mr. HENRY moved—

> That the thanks of the members of the Pharmaceutical Society be accorded to the Council for their exertions on behalf of the Society during the past year.

Mr. ISRAEL seconded the motion, which was agreed to.

The CHAIRMAN, on behalf of the Council, thanked the meeting for the vote just passed.

Mr. PINHEY also returned thanks.

Mr. RIVERS LANGTON said he was glad to see the unanimous feeling which existed among the members of the society. There were no doubt great difficulties in the way of modern pharmaceutists; and the most dangerous difficulty they had to cope with at the present time was the vending of patent medicines. It did seem a strange anomaly that a law should be passed prohibiting young men from becoming chemists and druggists, or prescribing medicine, unless they passed a severe examination, while the general sale of patent medicines was permitted. He would not allow any patent medicine to be prepared except by qualified pharmaceutical chemists, and then to be submitted to the Pharmaceutical Society for their approval before offering to the public. He had completed the tour of the colonies, and he believed the chemists here would bear favourable comparison with the chemists at home. Persons coming out to Australia must be struck with the vast resources of the colonies, and he believed a great future was before them, and that the chemists would play a great part in contributing to the prosperity of the colonies.

The CHAIRMAN mentioned that the Hon. James Watson had informed him that as soon as the pressure of Parliamentary business would permit, he would take up the Pharmacy Bill. Mr. Oliver, the Parliamentary draughtsman, was going on with it at intervals, and he believed it would be a very good measure.

On the motion of Mr. WATT, seconded by Mr. BELLEMEY, a cordial vote of thanks was passed to Mr. Senior for his services as chairman. Mr. Bellemey thought the Society might very reasonably take up the matter and be the means of introducing some legislation to insure that patent medicines should be registered, and their ingredients published. Such a course would, he believed, prevent the public being imposed upon.

Metropolitan Reports.

CRICKET MATCH.—Messrs. Baiss Brothers' eleven met an eleven of Messrs. Burgoyne, Burbidges, Cyriax & Farrics' Club on Saturday, September 10, at Erith. There was every promise of a good contest, but rain prevented the sides from completing a single innings each. The following was the score, as far as it went:—

MESSRS. BURGOYNE'S SIDE.		MESSRS. BAISS'S SIDE.	
R. Howell, c Welch, b Peckover	15	W. Standring, b Burghes ..	3
— Bew, b Welch	6	W. Giller, not out	30
H. T. Cattley, b Welch	1	D. Womersley, c b Howell ..	2
— Burghes, b D. Womersley ..	29	N. Womersley, b Burghes ..	17
— Helps, b D. Womersley ..	23	A. Womersley, b Burghes ..	0
T. H. D. Wickham, b D. Womersley	0	F. Dand, b Helps	3
— Farrell, b D. Womersley ..	0	S. C. Welch, not out	1
— Bain, b D. Womersley ..	6	J. Peckover	0
R. E. Taylor, b D. Womersley ..	2	S. S. Baiss	0
H. Taylor, not out	0	A. Baiss	0
A. Baggallay, b D. Womersley	0	N. Standring	0
Extras	9		
	91		56

The parties dined together afterwards at the Prince of Wales' Hotel, and spent a cheerful evening, under the presidency of Mr. Sydney S. Baiss, with Mr. Howell as vice.

AN UNQUALIFIED PRACTITIONER.—At the Southwark Police Court, on August 25, Thomas Theodore Thompson, residing at 40 Jamaica Road, Bermondsey, was committed for trial for having falsely represented himself as a medical practitioner, and with having by the representation obtained a sum of 14*s.* with intent to defraud. For some years defendant had carried on the business of a dispensary with the aid of his father, who was now dead, and subsequently of his brother, who was an apothecary. The business was carried on in the name of William M. Thompson, whose name appeared over the door, whilst on the window there was a large blind setting forth the hours of attendance and charges for medical advice. The case was set on foot by the South-East Branch of the British Medical Association. The nominal prosecutor stated that he called at the defendant's dispensary in Easter week, and asked to see Dr. Thompson. The defendant said, "I am Dr. Thompson," and then prescribed for his complaint, and gave witness a bottle of medicine, for which he paid 2*s.* 6*d.* He saw the defendant several times afterwards, and paid him altogether a sum of 14*s.* Finding himself getting worse he called in another doctor, and then went to the defendant to demand his money back. The defendant had guaranteed to cure him for a guinea, and instead he had nearly killed him for 14*s.* (Laughter.) At the Surrey Sessions, on September 8, the defendant was fined 10*l.*

Provincial Reports.

CHESTER.

THE SALE OF POISONS.—On September 9, at the Chester City Police Court, before the Mayor (in the chair), James Marcham, of Lower Bridge Street, druggist, was charged by George Revill Templeman, assistant secretary of the Chemists and Druggists' Association, for selling laudanum, on the 5th inst., without placing a label on the bottle setting forth its dangerous contents. He was liable to a penalty of 5*l.* and costs; but this being his first offence the bench thought the justice of the case would be met by a fine of 10*s.* The bench refused to grant costs.

GRIMSBY.

SERIOUS FIRE.—A destructive fire broke out a little before noon, on September 9, on the premises of Councillor G. Croft, chemist and druggist, 402 Victoria Street North. Mr. Croft's premises were completely burnt out from cellar to roof, and the stock utterly destroyed. The building was insured, but not the stock, which was valued at 8,000*l.*

LIVERPOOL.

CHARGE OF STEALING OPIUM.—At the Police Court, on September 6, Ambrose Wallace and James Mannion were charged with stealing 60 lbs. of opium, valued at 24*l.*, the property of Mr. Samuel Banner, oil merchant, Irwell Chambers; and Philip Comerford and Edward Davies were charged with feloniously receiving the same. Mr. Marks prosecuted; Mr. Quelch defended Wallace, Mannion, and Davies; and Mr. W. H. Quilliam watched the case on behalf of the Druggists' Association. Mr. Marks stated that on June 30 Mr. Banner had in his warehouse about 187 lbs. of opium, and on August 8 the cellar was found broken open and 60 lbs. of the opium gone. The prisoners were found dealing with opium, about which they gave very contradictory statements. They evidently endeavoured to dispose of it in a roundabout way, and they sold it to a drysalter named Bown, who afterwards sold it to several chemists. The three first-named prisoners were porters, and Davies described himself as a "commission agent." Evidence having been given, the prisoners were committed for trial.

PRESTON.

A CHEMISTS' ASSOCIATION.—A meeting of chemists was held at the rooms of the Pharmaceutical Students' Society, on September 5, when it was proposed by Mr. C. H. Sharples, F.C.S., seconded by Mr. L. Barnes, and carried unanimously—"That an association should be formed, amalgamating with it the above Society, and to be called 'The Preston Chemists' Association.'" The following gentlemen were appointed a committee of management, with power to add to their number:—Messrs. N. Miller, T. Parker, J. Scott, C. H. Sharples, W. Bowker, E. Bradley, J. J. Duckett, and R. Singleton; and Messrs. L. Barnes and W. Willan were elected secretaries *pro tem.*

WARWICK.

CHINESE MALACHITE.—On September 5 a "cheap Jack" named Henry Norman was charged at the Police Court with having obtained 1*s.* by false pretences from a certain John Magee, who bought some of his medicine. The defendant had been in the habit of attending markets to sell bottles of medicine which he called 'Chinese malachite." He would collect an audience and then expatiate on the stores of learning and genius hidden in the recesses of Chinese lore, and then begin to unpack a tea-chest containing bottles of his malachite, which he professed to have received from his agents in China. It was a specific, he said, for rheumatism, shortness of breath, and various other maladies. It could, he added, be purchased of all chemists at 10*s.* 6*d.* a bottle; but to show how they imposed on the public, he would sell it at 1*s.* a bottle. A person who had been assistant with him testified that the prisoner made the "malachite" himself, of "Chili pods, aniseed, cloves, cinnamon, cayenne pepper, and black sugar. The cost would be only about a farthing a bottle, and prisoner would sometimes sell 1,200 or 1,300 bottles."—Mr. Hugo Young, for the defence, contended that the accused was entitled to call his medicine "Chinese malachite," the same as other concoctors of medicines gave them distinctive names.—The Bench at once dismissed the case without comment.—The result was received with immense cheering, which was repeated outside the court.

"THE CHEMIST AND DRUGGIST" IN NEW ZEALAND.—Mr. O. V. Morgan (who has just visited New Zealand), in sending us a few new subscribers from that colony, writes:—"You have now as subscribers every chemist and druggist in Wellington, and all, bar one, in Christchurch."

PHARMACEUTICAL FOOTBALL CLUB.—The committee of this club met at 17 Bloomsbury Square, on September 8 last, to transact business for the ensuing season. In all twenty-two matches will be played, half of which will take place on the club's ground at Primrose Hill. The dressing-room for the season is at the Lansdown Arms, Gloucester Road, within half a minute's walk of Chalk Farm Station. Any gentlemen wishing to join the club should communicate with J. O. Braithwaite, Hon. Sec., 17 Bloomsbury Square, W.C.

Scientific Notes:

On Chemistry, Pharmacy, Botany, Materia Medica, &c., Original, Selected, and Translated.

SOLVENT FOR GALLIC ACID.

MR. F. LONG, L.R.C.P. (Wells next-the-Sea) states in the *Brit. Med. Journ.* that having chanced to prescribe a mixture containing ½ drachm gallic acid and 1½ drachm citrate of potash, he found to his surprise that he obtained a perfectly clear mixture. He has since found that 20 grains citrate of potash will dissolve 15 grains gallic acid in 1 oz. water, and remain clear for any length of time.

THE PURIFICATION OF OILS.

Linseed Oil should be warmed in an iron kettle and melted lead poured into it, in a thin stream, a little at a time. It should then be left for several days in a warm place, when a deposit separates and the oil becomes quite clear. Oil thus treated possesses in a high degree the property of drying quickly, and is specially suited for the manufacture of varnishes and lacquers.

Cocoanut Oil should be rubbed up, thoroughly incorporated with warm water, placed in a bag and pressed through it. The fluid thus obtained is brought to the boiling-point and the separating oil is clarified with sugar and alum. The oil thus obtained is odourless, white, and well adapted for use in perfumery.

The purification of *Fatty Oils* may be conducted in the following way:—In a tub provided with a faucet a kilogramme of potassium permanganate is dissolved in 30 litres of water. Fifty litres of oil are added and thoroughly agitated, then left to settle for two days. After this time 20 litres of warm water are added with five kilogrammes of crude hydrochloric acid, and the whole is vigorously agitated. After several days' rest the water is drawn off from the oil, and the latter is washed with hot water to remove the acid. For the quicker separation of the oil from the water the whole is placed in a carboy with a perforated cork in which two tubes are fitted. One of these is a funnel-tube reaching nearly to the bottom; the other is a bent delivery-tube reaching a little way below the cork. By pouring water through the funnel-tube the oil is delivered bright and clear. It is colourless and odourless.—*Corps Gras Industriels.*

CELANDINE.*

LUDWIG HAITINGER has found that chelidonium majus, or celandine, which is also one of the wild plants of England, contains citric and malic acids, the former in some quantity.

ANDA-ASSU OIL, A NEW PURGATIVE.

ACCORDING to the *Pharmaceutische Zeitung*, August 17, 1881, the fruit of anda-assu (Johanesia princeps), a plant indigenous to Brazil, and belonging to the family of the Euphorbiaciæ, yields an odourless sweetish oil, possessing the properties of a mild purgative. A dose of 10 g. effects four or five stools without causing nausea or irritation of the bowels.

Compared with castor oil, anda-assu oil is more mobile, and is free from the unpleasant smell of the former.

HELIOTROPINE.

ACCORDING to the *Droguisten Zeitung*, August 19, 1881, Messrs. Schimmel & Co., of Leipsic, now prepare pure heliotropine in crystals, with the identical pleasant odour of the heliotrope (heliotrop. peruv. or heliotrop. grandiflor.).

The heliotropine prepared by them is soluble in oils, alcohol, and fats, which renders it suitable for preparing perfumes and scenting oils and soaps (5 g. heliotropine to 1 kg. alcohol, oil, or soap).

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* *Monatshefte für Chemie*, July, 1881.

A small quantity of heliotropine goes a long way. Put up in well-closed bottles it keeps well, but it is best to store the bottles containing it in a cool dark place.

Piscidia Erythrina, a Substitute for Opium.*

Piscidia erythrina, a drug obtained from the root of a tree growing in Jamaica, is a narcotic with properties much resembling opium, but more soothing than the latter.

Naphthol in Skin Diseases.

The efficacious application of tar to relieve certain symptoms of diseases of the skin is sufficiently well known, but it will be admitted that tar cannot always be depended on in a complex of symptoms constituting a skin disease, such as eczema.

Professor Kaposi, of Vienna, gives in the *Wiener Medizinische Wochenschrift*, May 28, June 4 and 11, 1881, an interesting account of experiments conducted with beta naphtol, usually called simply naphtol ($C_{10}H_8O$), and manufactured specially for medical use by Messrs. Kunheim & Co., of Berlin.

The beta naphtol is a dark violet-brown crystalline mass, which breaks easily into powdered fragments. It has a weak phenol-like but sweetish odour. A particle placed on the tongue causes acute burning, similar to that caused by Spanish pepper. A drop of a weak solution of carbonate of potash will, however, soon remove this.

Naphtol dissolves in equal weights of alcohol, only with difficulty in water, but easily in diluted spirit of wine. If to an alcoholic naphtol solution a little water be added, a cloud will immediately form, which disappears on shaking, when the water added does not exceed half the volume of alcohol. Naphtol dissolves freely in fixed oils and fats.

A diluted alcoholic solution and a salve are, therefore, the only means of applying napthol. Care must be taken not to make them too strong.

Professor Kaposi reports the successful treatment of 106 cases of skin diseases of very various character.

In cases of scabies he prescribed as follows:—

	Parts
Naphtoli	15
Adeps	100
Sapon. virid.	50
Cret. alb.	10

To be applied twice a day.

Determination of the Percentage of Alkaloids in Cinchona Barks.

In the *Archiv. der Pharmacie*, August, 1881, M. Prollins, apothecary in Hanover, gives the following methods for determining the percentage of alkaloids in cinchona barks.

A. Process for determining the total alkaloids. Five g. of the bark to be tested are powdered and placed in a bottle which admits of being closed by a stopper or cork, and shaken up therein with a mixture consisting of 38 g. of alcohol, 10 g. of chloroform, and 2 g. of ammonia, whereby the whole quantity of alkaloids present in the bark is dissolved out, forming a port-coloured solution. After allowing the whole to stand for a few hours, the latter is decanted off, and mixed with 5 g. of finely-divided slaked lime, which bleaches it, precipitating the colouring matter, the alkaloids remaining dissolved.

The clear solution is then filtered off and weighed, to ascertain its relative proportion to the bark operated on, and this being done it is slowly evaporated down, whereupon quinine remains behind as a varnish-like mass, the other alkaloids assuming the crystalline state. The weight of this extract gives the percentage of alkaloids present in the bark.

B. Process for determining quinine and the alkaloids soluble in ether. Three g. of the powdered bark are treated in the same way as above, with a mixture consisting of 88 g. of ether, 4 g. of ammonia, and 8 g. of alcohol. After standing a few hours, 20 g. of the clear solution, which contains the alkaloids required, is poured off from the powder remaining behind in the bottle, no filtering being required. The decanted liquid is treated with 5 or 6 drops of dilute sulphuric acid, which, upon being allowed to stand, deposits the alkaloids in a viscid layer at the bottom of the vessel, from which the supernatant ether can be easily poured off. The latter, owing to its being contaminated with alcohol, retains a small quantity of the alkaloids, which is removed by treating it with 2 and 1 g. of water respectively, the alkaloids thereby separated out being added to the first precipitate. From the solutions containing the alkaloids the alcohol is expelled by gently heating, and, while warm, the whole is precipitated with ammonia in a porcelain dish of known weight, and therein washed, dried, and weighed. The increase of weight, multiplied by 50, gives the required percentage of alkaloids sought for in the bark.

* *Pharmaceutische Zeitung*, August 27, 1881.

MISCELLANEOUS FORMULÆ.

Effervescent Citrate of Iron.—M. Kossmann-Gollantsch recommends the following in the *Pharm. Zeitung*:—

	Grammes
Ferri ammon. cit.	4
Acid citric	37·5
Sugar	37·5
Bicarb. sodæ	45

Make into a granulated powder by the aid of absolute alcohol. If carefully prepared this preparation is of a citron-yellow tint, keeps well, and effervesces freely.

Syrup of Chloral.—Fairthorne finds that the acrid taste of the chloral is tolerably well covered in the following form:—

Chloral. hydr. cryst.	5j. gr. xx.
Aq. menth. pip.	f. 5iij.
Curaçoa cordial	f. 5iv.
Syrup acaciæ ad	f. 5ij.

Turkish Hair-dye.—Finely-powdered galls are made into a stiff paste, with as much fatty oil as is necessary, and the mixture heated in an iron vessel until no more oily vapour is driven off. The mixture is then rubbed to a pap with water, heated, and while still moist so much finely-powdered metal (iron and copper in equal parts) intimately mixed with it as to bring it to the consistence of an ointment. This is perfumed with ambergris, and kept in a damp place. It is said to keep the hair soft, glossy, and black for a long time, even after only a single application. The blackening property of the mixture is evidently due to the development of pyrogallic acid by the heating process.—(M. V. Valta, Vohburg, in *Pharm. Zeitung*).—[The method of indicating proportions in the above prescription is probably a Turkish peculiarity.—Ed. C. & D.]

Mixture for Acute Gonorrhœa.—

Salicylic acid	12 grains
Bicarbonate sodium	6 ,,
Syrup	1 drachm
Water	3 drachms
Ess. wintergreen	*q. s.* to flavour.

One dose; to be repeated each four hours until the acute inflammation subsides, when copaiva should be given and injections used. Six doses are usually ordered, and rarely fail to effect the desired result.—*The Druggist* (Chicago).

Hop Bitters.—

	Parts
Aurantii corticis	4·0
Calami	2·0
Pimpinellæ	2·0
Humuli	1·0
Sacchari	8·0
Alcoholis	32·0
Aquæ	48·0

—*Pharmacist.*

Leather Dressing.—A fine, brilliant, elastic dressing for leather can be made as follows:—To 3 lbs. of boiling water add, with continual stirring, ½ lb. of white wax, 1 oz. of transparent glue, 2 oz. of gum senegal, 1½ oz. white soap, and 2 oz. of brown candy. Finally, add 2½ oz. of alcohol, and, after the whole is cooled, 3 oz. of fine Frankfort black. The dressing is thinly applied to the leather with a soft brush, and after it is dried it is rubbed with a piece of fine pumice-stone and polished with a stiff brush.

THE CHEMIST AND DRUGGIST

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SEE SEABURY & JOHNSON'S Advertisement of INDIA-RUBBER POROUS AND SPREAD PLASTERS on page 111.

PAGE'S PATENT VAPORIZER, ETC. See page 112.

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The New Cooked Food for Infants, Children, and Adults, both in Health and Sickness. *See page* 105.

PURE COD-LIVER OIL. See page 112.

STEDMAN'S TEETHING POWDERS.

1/1½	size (containing 9 Powders)	..	..	8/6	per dozen	*less usual discount.*
2/9	„	„ 27	„	..	.. 24/0	„
4/6	„	„ 54	„	..	.. 42/0	„
11/0	„	„ 216	„	..	.. 11/0	net.

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Manufactory—125 NEW NORTH ROAD, LONDON, N.

PECTORAL FRUIT PASTILLES. See page 112.

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G. S. MUMFORD, STEAM MILLS, FARRINGDON ROAD, LONDON, E.C.

JUJUBES. See page 112.

ELLIMAN'S EMBROCATION. See page 52.

MAY & BAKER. SPECIAL NOTICE page 2.

EDITORIAL NOTES.

THE BRITISH PHARMACEUTICAL CONFERENCE.

WE think the somewhat condensed report of the recent Pharmaceutical Conference at York, which we publish in this number of our journal, will sufficiently show that the vitality of that association still remains unimpaired. The tendency to run into abstract chemistry, which manifested itself a few years back and which threatened to choke the pharmaceutical character of the Conference, has been judiciously checked, and this year's programme was one which well befitted the occasion, and included papers of direct use to pharmacists, and obviously calculated to advance in several respects the art itself. The papers, as we publish

them, are themselves abstracts: it would serve no purpose for us to further abstract them in this place.

The President's address, coming from Mr. Reynolds, was certain to be original, controversial, and somewhat quaint. It was a happy idea to illustrate the pharmacy of the past by the fashions of its preparations. Last year Mr. Southall took us back to the pharmacy of Rome; Mr. Reynolds' excursion into the seventeenth century reveals a scarcely less distant era. What is to succeed the present age of concentrated drops, alkaloids, and active principles we have yet to learn. Mr. Reynolds does not underrate the pharmaceutical grievances of the present day, but there is one wail with which he does not seem much to sympathise. From time to time we hear a little of the social disqualifications of the pharmacist, and a correspondent of a contemporary happily cuts in at the nick of time to ventilate this trouble. Chemists and their wives, it appears, do not get sufficiently invited out to parties. And how can this be remedied? This is "Epsilon's" suggestion:—"We must have our pharmacies more like private offices, and our windows simply protected from the public gaze by wire blinds, our doors closed, and we must give up the sale of the numerous little things that we now sell." The present seems a queer time to offer that sort of advice. Mr. Reynolds does not find the question of social lines a very exciting one, and he disposes of the trouble that has been raised on that score by the remark that the "select district" where educational difficulties are thrown in the way of "persons" following our calling "is not in the North of England."

This year's Conference is fairly to be credited with Mr. Proctor's sparkling paper on "Pharmaceutical Remuneration." Although officially rejected, for the reason that a discussion on such a subject would not come within the scope of the objects of the Conference, it is almost to be regretted that some opportunity could not have been obtained for a *vivâ-voce* discussion of a matter which keenly interests all chemists and druggists, not for the purpose of bringing about any delusive agreement as to charges, but rather that conflicting views on this vexed but most practical subject might be brought to the test of public tournament. A few seem to have made up their minds fixedly as to the course they will take in view of modern competition, but the majority, we believe, are still in the agonies of doubt and hesitation, a condition in which the desirable "fattening" process which Mr. Proctor alludes to is very remote. A good discussion, in which all views were ably represented, might perhaps bring the unfortunate inquirer temporarily deeper into the slough of doubt; but, if so, it would be the necessary path towards the firmer land of sound practice beyond. Mr. Proctor concludes that the best benefactor to pharmacy would be he who could make one pharmacist grow where two grew before. This is witty, but it is really only a new way of stating the problem: it is no help towards its solution. It means that a process of annihilation is going on in which half our number must perish. So far as this is consolatory to A, it is melancholy for Z. We cannot say that the trade are likely to find any practical solution of their difficulties in Mr. Proctor's paper, but he will help them to some extent to overcome them if he can only make his brethren smile in their presence.

The central position of York, its many attractions, and the generous reception which its pharmacists gave to those who visited them combined to render the meeting of 1881 one of the most successful social gatherings which have yet taken place. The multifarious opportunities of enjoyment filled up every vacant instant, and the good-humoured face of the local secretary, after all the fatigue which his labours on behalf of the Conference had imposed upon him, made the acceptance of the favours shown doubly pleasant. We hope he will look as happy when the Conference visits York again in 1931.

THE FRENCH DELEGATES ON THE INTERNATIONAL PHARMACEUTICAL CONGRESS.

When a party has been given, and the last guest has expressed in warm terms the almost frantic enjoyment he has experienced, the host and his family congratulate themselves on the brilliant success of their entertainment, while, perhaps, simultaneously, the more cynical of the guests are commenting upon it derisively or angrily. The Pharmaceutical Congress was hardly on all fours with a private party, and it would be exceedingly to be regretted if those who attended it could not, with perfect friendliness towards those who bore for the moment the relationship of host, criticise the proceedings or any part of them with whatever severity they may think they deserved. Certainly, no sensible Englishman can object to any of the criticisms which have yet appeared. But he might discover from some of them that all of his arrangements were not found so absolutely perfect as perhaps he had fondly imagined.

During the past month we have read in a number of French, German, and American journals, reports of the Congress sometimes interspersed with personal comments. In the American and German papers the reports are generally so far very business-like, and do not get so far as criticism, though we may except a pleasant narrative by the editor of the *Pharmaceutische Zeitung*, describing his journey here and back, and his impressions of London. We condole with him on the fact that he had to pay 1*s.* 6*d.* for a cup of coffee as soon as he got on an English steamer at Flushing, and we are glad that he found Londoners "on their native heath" less pronounced in their manners than those generally seen in Continental cities. But our present business is with the French reports, three of which are before us. The first is that of M. Méhu, in the *Journal de Pharmacie et de Chimie*. M. Méhu is of opinion that the results of the Congress are far from being satisfactory. The question of the education of young pharmacists led to no practical conclusion. Some pharmacists complained of the scant consideration which they enjoyed as compared with the medical profession, therefore M. Petit and himself had asked that the Congress should express the wish that the classical and scientific studies, which should precede pharmaceutical education, should be the same or equivalent to those undergone by physicians. This would be the surest way of obtaining an equal standard of study, and consequently equal consideration. The proposition was not adopted, and it seemed to make the recruiting of pharmacists too difficult in England, Germany, and in other countries. Secondly, the story of the International Pharmacopœia is recounted with some bitterness. In 1869, at Vienna, the third Congress asked the Pharmaceutical Society of Paris to draw up a plan of such a work. This done, M. Méhu was commissioned to present it to the fourth Congress at St. Petersburg in 1874. It was well received, and it was divided amongst the different members so that each should add whatever notes he might think fit. This annotated manuscript was to be printed by the Pharmaceutical Society of St. Petersburg. They did not do so. After waiting five years, and after much solicitation, the manuscript was returned. A commission of the Paris Pharmaceutical Society took cognisance of some additional notes, and revised the work. The Medical Congresses of Geneva and Amsterdam formally approved the work, the latter offering to defray the cost of publication, a request with which, out

of deferenee to other pharmaceutical congresses, it was not thought right to comply. "I showed," says M. Méhu, "this manuscript, ready for printing, to the London Congress. Doubts were cast upon its authenticity; some said it had been burnt." It was the unique copy, none of which had been destroyed. The late M. Jordan, of St. Petersburg, had been commissioned to translate it into Latin, but the existence of that second work was doubtful.

Finally, the members of the St. Petersburg Congress, who had voted with enthusiasm for the printing of an International Pharmacopœia, failed to carry out their decision, and even the proprietary right of the Paris Pharmaceutical Society in a manuscript solely produced by themselves had been contested.

This latter statement we leave exactly as it stands, thinking it only fair that both sides of the question should be represented. With regard to the first, we must observe that the value of international communication is never more apparent than when such utterly dissimilar views are brought forward for discussion. The high standard advocated may, and probably would, suit the French nation. We offer no definite opinion, not having sufficient knowledge to form a just decision. For us, in England, such a course would be untenable. Neither the standing nor the remuneration of British pharmacists would warrant its adoption. A man so trained, and so qualified, would be an idiot to stand behind a druggist's counter, with the secondary rewards open to the position, instead of accepting the larger emoluments and higher standing of the physician. There are some already who think that the game is hardly worth the candle; there are not any who would deem it worth the electric light. The result would not be so much a difficulty in recruiting the ranks of pharmacy, as an entire desertion of its pursuit. Just as formerly the druggists stepped in and claimed the position abandoned by the old apothecaries —so a new race would rise, with lower but sufficient qualifications, and become the dispensers and druggists of the future. Pharmacy in England is a trade, and the moment we are tempted to raise it absolutely to a profession the trade will remain, but it will be carried on by other hands.

M. E. Ferrand reports the Congress in the *Union Pharmaceutique* (the organ of the *Pharmacie Centrale* of France). He opens with a lament that the French representatives were so generally limited to an acquaintance with their own language. The English and Germans, he says, fairly understood each other: both understood French; the French alone were out in the cold. That ignorance, he adds, has become more painful during the past ten years. "Not rarely in the course of a discussion a German treats us with more or less *sans façon*, of which we remain unconscious; the interpreter who summarises his speech for us takes care not to faithfully render the expressions used by the speaker. The rest laugh in their sleeve." We do not believe there was the least foundation for this insinuation at the late Congress outside the unnecessary sensitiveness of the French delegates. The editor of the *Union Pharmaceutique* (M. Genevoix) here adds a note which we hope will console the mind of his contributor. He says:—"Science is a universal domain; it knows no frontiers, and its disciples who would make it the property of any race or people are idiots whom time and truth alone will bring to reason." That rebuke may be taken, perhaps, not exclusively by the Germans.

M. Ferrand proceeds to relate the history of the discussion on the Universal Pharmacopœia, describing as a *coup de théâtre* the moment when M. Méhu raised aloft the manuscript prepared by the French pharmaciens, which M. Martenson had declared to have been burnt.

The discovery of the existence of the manuscript, he says, was evidently unwelcome to a good many people. It was too complete. There was no blank page left whereon to print the seal of the German Empire.

This melancholy anti-Teutonic strain, which evidently haunts M. Ferrand, returns again and again in the course of his report. Here is another little bit:—"Next we listen to some notes on Pharmaceutical Education. This gives us the opportunity of hearing the opinions of Prince Bismarck on the subject." There is a kind allusion to the appearance at the Congress of Daniel Hanbury's father, "an old man bowed with age, whom we all regarded with a sentiment of profound sadness, so smitten by the loss of his illustrious son, and condemned to carry to the tomb his irreparable sorrow."

M. Ferrand, in summing up his report, thus expresses his opinion as to the results of the Congress:—"Beyond the ephemeral relations exchanged between representatives of these various nationalities—relations assuredly courteous and pleasant, but wholly superficial—the general advantages are doubtful. Each nation, whatever may be its own private aspirations, is disposed to proclaim itself as an example for the rest. And those whom fortune has especially favoured, and whom success has intoxicated, are particularly ready to offer models. Each nationality thus preserves its own character, and is little disposed to seek for inspirations beyond its frontiers. This disposition is most marked among those who at this moment seem to cry to all the echoes, *Ego nominor leo!* No net results, therefore, can be hoped for, except, perhaps, by our English brethren. The English, practical men, for which we cannot blame them, satisfied with the professional liberty which they enjoy, pursue the conquest of the position which is legitimately their due in the consideration of the public and of the Government; our support can only aid their progress. They reject with energy all the restrictive and vexatious measures which surround pharmacy elsewhere. Speak to them of commissions of inspection and disciplinary chambers! They would rather abandon all hope of any modification of their present system than buy it at such a price. As for us Frenchmen the discussions have shown us how much our former influence has been compromised by the events of 1870–71, and how much we have to do to regain the ground then lost. It is a lesson for us to con and reflect upon."

The *Répertoire de Pharmacie* gives a report of the Congress from the pen of M. Patrouillard, who represented that journal at the Congress, and was also a delegate from the Société des Pharmaciens de l'Eure. This gentleman is good enough to assure the French pharmaceutical societies that if it happened that any of them were uninvited to the Congress the oversight was perfectly involuntary. His comments on the proceedings indicate a state of mind very similar to that of M. Ferrand. First, he says, respecting the translations, that several times in the course of the discussions the ideas of the speakers were not fully conveyed, so that the majority of the French and Belgian representatives were not fully conversant with what was going on. Then, he remarks, that the committees appointed to select the officials were designated by a very small number of the members, the rest taking no part in the nomination; "but we were not yet sufficiently familiar with these meetings to take the initiative in putting forward our claims, and, besides, it appeared to us that there was on certain points a preliminary understanding among the delegates speaking the German language." Analysing the list of officials, he points out—and we fully agree that he has on this point ground for complaint—that while France and Belgium sent the most foreign dele-

gates they were granted only one representative each on the "bureau"; Germany, which was third in the number of its delegates, was represented by two; while Austria's three delegates, Denmark's two, and Russia's two were all honoured with an official position. M. Patrouillard then proceeds to resume the papers and discussions on the subject of the International Pharmacopœia, and these, we need hardly say, he gives with perfect fairness, and without any of that tone of passion which characterises M. Ferrand's report. M. Patrouillard's report is only as yet partially published. So much for the sanguine hopes of those who advocate these International Congresses as means for the promotion of universal brotherhood!

THE VETERINARY SURGEONS ACT.

THIS Act, which passed on one of the last days of the session of 1881, raises the profession of veterinary surgeon to the proud height enjoyed by the professions of medicine, pharmacy, and dentistry. That is to say, it makes it illegal for an unregistered person to assume the style or title of veterinary surgeon, or any name, title, addition, or description stating that he is a veterinary surgeon or a practitioner of veterinary surgery.

The Royal College of Veterinary Surgeons is created the examining body, and the register of its members is hereafter to be styled the Register of Veterinary Surgeons. The Registrar is empowered to employ various means for correcting the Register, which must be published every year. The Council has its power of removing names from the Register confirmed under limitations.

The first persons eligible for registration are those who possess some recognised diploma. All British practitioners must be members of the Royal College of Veterinary Surgeons. Persons who possess a foreign or colonial diploma, entitling them to practise in the colony or country where it was granted, are entitled to registration under certain conditions. Section 15 is the one which most concerns chemists. It provides that "any person who at the passing of the Act practises, and has continuously, for not less than five years next before the passing of this Act, practised veterinary surgery in the United Kingdom, but is not on the Register of veterinary surgeons, shall be entitled, subject to the provisions of this Act, to be placed on a separate register under the heading of 'Existing Practitioners,' without examination," on such terms as to fees and other matters as the Council of the College may direct. These terms have not yet been published. Applicants for registration under this section must make their application within one year, and produce reasonably satisfactory evidence; and if the College refuses to register him, the applicant can obtain from the College a written statement of the reason for that refusal, and may appeal to the Privy Council to order the Council to register him.

The period of five years' continuous practice does seem longer than justice would demand. It will be hard for a man who has been practising as a veterinary surgeon for four years and a half to find himself compelled either to give up his business or to undergo the curriculum and pass the examinations demanded by the college. It will be noted that the Act does not say "continuous exclusive practice," on the one hand, nor "practice in conjunction with" pharmacy or anything else on the other. This studious vagueness looks as if the College meant, if possible, to ride roughshod over any chemist or blacksmith who may have added farriery or veterinary surgery to their business.

The sections which impose a penalty for the use of the title of "veterinary surgeon" do not come into force till January, 1884, though a penalty of 20*l.* is imposed at once on any unregistered person who may hold himself out to be registered.

Of course the Act does not forbid, or in any way hinder, veterinary practice. It protects the title "veterinary surgeon," and makes it impossible for unregistered persons to recover fees for advice; but it does not prevent practice for cash, nor the recovery of payment for goods supplied.

FREE TRADE AND FAIR TRADE.

SOME sanguine disciples of the new faith, which has rather cleverly christened itself "fair trade," thus in some degree stealing the clothes of its opponents, boldly prophesy that our future national contest is to turn on the question of the continuance of our free-trade policy. That "fair trade" should say what it can for itself is very desirable, and if some hitherto unrevealed possibility of increasing our national prosperity can be disclosed, no one, freetraders least of all, need be so prejudiced in favour of existing practices as to object to listen. But the opponents of free trade must learn first of all that they have a mighty mass of figures to run their heads against before they can convince the majority of economists that the policy of the last 40 years has been erroneous. Of course, when they are told of the marvellous development of British commerce during that period they reply that it would have been still more marvellous if it had not been for our peculiar free trade. Assuredly it might have been; but that is just the question in dispute. That our free-trade system has been one of the main factors in the encouragement of the British carrying trade is almost beyond dispute, and is hardly questioned, even by its opponents. But the magnitude of this claim in its behalf is scarcely realised. British shipping exceeds in tonnage that of all the world put together. What that means by itself, and what that implies, is so immense that a moment's thought may give an idea of it, but a volume would be necessary to fully discuss it. It is that development which has tended to the encouragement of British enterprise in all parts of the world. Not only in the English colonies and in India, but in South America, in the United States, in France, in Japan, and elsewhere, British capital and British energy are active. Thus it comes to pass that a vast bulk of the imports of which so much has been recently said, is really trade with British subjects. We are spending 180 millions more in foreign trade than we receive, and to that extent, say the alarmists, we are living on our capital. But every fact that can be adduced shows that, in spite of that enormous balance of trade apparently against us, the nation is increasing in wealth. The money in savings banks augments, income-tax brings in more per penny, and pauperism is distinctly on the decline. These are proofs, not mere assertions, that the balance of trade is not really against us. Who has not heard in the chemical trade of the dreadful effects of German competition? That this affects a few individuals is certain, but the Board of Trade returns show that from year to year English chemical manufactures are being exported on a continually increasing scale. And in the products in which German manufacturers do beat us, what is the alleged reason? Generally, that labour is so much cheaper there than here. If that is so, all the hitherto accepted laws of social economy are in error, unless it proves that England is to that extent a more prosperous country than Germany.

But suppose the fair-trade party could have the appointment of the next Government, and regulate our Customs duties at their own sweet will, what course would they

take? There would be no meaning in their agitation unless they put a protective duty on foreign grown or made goods, for nothing short of this would really benefit their clients, the British manufacturers and producers. If they could show us some way by which we could make the French and the Americans pay for our national expenditure, they would do some service to the State. But they hardly aim at that. Protective duties, if effective, are of course of no use to the revenue. In fact, they count the other way, for they necessitate an extra staff of Customs officers. But then where are they going to begin? Why should one class be protected and nursed at the expense of the rest and no advantage be given to the others? These would be troublesome questions for the "fair-trade" Chancellor of the Exchequer. And he would assuredly find his popularity a slippery quantity when he began his policy of treading on the toes of a million to make more room for a thousand. Chancellors have for many years sought the bubble reputation by taking off taxes, not by putting them on, and we are not aware that the general satisfaction has ever been associated with any generous feeling towards the people whose products were thus freed from taxation. One might think, to read the tracts of the fair traders, that England had been taking off duties out of some quixotic affection for foreign barbarians. We are not aware that she has had any such notion, nor do we think that any such notion is desirable. But equally adverse to true ideas of business would be the purpose of injuring our neighbours at our own expense, and we fail to see what else "fair trade" means.

The "fair-trade" Conference which lately met in London wound up its proceedings with a banquet from which foreign wines were rigorously excluded, and at which ale and ginger beer were the substituted beverages. The Conference did nothing more sensible. If they want to injure French and benefit British commerce let them individually and persistently follow this course. There is no law to compel them to drink French wines, to wear French silks, to take American pills, or to use Yankee inventions. When they adopt any of these—and probably most of them did the next day—they do so simply for their own pleasure or advantage. Are they deluded, or has free trade brought to their doors on the best terms the products of all foreign lands? And if they find it to their own advantage to benefit by the opportunities thus afforded them, are they not themselves living instances of the wisdom of that policy which they now seek to overturn?

MEDICINE AND THE DAILY PRESS.

THE tone of oracular authority which the daily papers seem to think it necessary to assume on every subject on which they have to report may impose on the lowest stratum of their readers, but is rather calculated to injure their authority than otherwise with people of a little insight. If your daily paper ever undertakes to comment on any subject in which you are particularly concerned you may be sure that the trumpet will have no uncertain sound, and you may be pretty equally certain that the great "we," who give the final decision without the chance of appeal to hundreds of difficult and delicate questions on which true experts modestly reserve their opinions, have the flimsiest, if not the most absolutely inaccurate, acquaintance with the subject which they undertake to discuss. And yet you go on to the next article on some question of Central Asian policy without in the least doubting the qualifications of your guide, philosopher, and friend to put everything right there. A collection of the medical and pharmaceutical blunders of the daily press would be at least amusing, if not instructive. Take for instance a few specimens culled within a day or two of each other. The *Daily News* had hardly finished its review of universal medical science in connection with the International Medical Congress when it had to publish a telegram from Washington about the condition of President Garfield. We were told that "the clearing of the mind was the first indication that he was recovering from *enema* of the brain." This statement becomes intelligible when we discover that the President had suffered from *anæmia* of the brain. But how could the inhabitants of Yorkshire ascertain when they read in the *Yorkshire Post* that Mr. Thresh had read a paper "on Essential Oil of Vinegar" that Mr. Thresh had really enlightened the Pharmaceutical Conference on "essential oil of ginger"? The same paper, we may mention, published the greater portion of Mr. Reynolds' address to the Conference, which it stated was delivered by "the President," but nowhere indicated who the President might be. Then try to appreciate the amount of new knowledge likely to be absorbed by a reader of the *York Herald* from the reports in that journal on the papers and discussions at the Conference. Take the following specimen, which was really more lucid than many:—

> Professor T. E. Thorpe, Ph.D., F.R.S., read a paper on "Glycerinum Acidi Gallici." Mr. G. F. Schacht inquired whether the change took place only when the temperature had reached a certain elevation, or whether in his judgment it was possible with prolonged continuance of some lower temperature to produce the same effect. Mr. Martindale said that if parchorate had been used it would have been held in solution. Professor Attfield said it would be interesting to know if any pharmacist had ever found the change referred to occur. Professor Thorpe replied as to the temperature he had not very exact information on this matter. So far as he was able to say this reaction certainly did not begin much below the boiling point of the water.

One of the encyclopædists on the *Globe* had Mr. Reynolds' address given him, with instructions to make a half-column article on it. Of course it was not necessary for him to read it. Mr. Reynolds was not likely to tell him anything he did not know. But he was pleased to express his gracious satisfaction with the conclusion which he said Mr. Reynolds' address seems to warrant, that

> If the sellers of medicine are better instructed than of old, the purchasers are getting wiser too. There can hardly be a better proof of this than the fact that four-fifths of the quack medicines formerly in vogue have fallen out of use.

We hope the proof rests on some better basis than that.

Of course they manage these things better in France. Parisian journalism is famous throughout the world for information, enterprise, and accuracy. An important daily journal lately published the following obituary notice:—

> The eminent physiologist Bell, inventor of the resinous purple, one of the most popular colours for silk, has just died at Rome.

Professor Bell who died at Rome discovered that the retina of the eye is not transparent and colourless, as was formerly supposed. He found that the ocular membrane was of a beautiful red purple colour, and he gave it the name of the retina purple.

The same journal, just before the death of Pierre Bonaparte, printed:—

> The Prince is hopelessly ill; the albumen of the eye begins to coagulate.

It is possible that the journalist had somewhat confused in his mind the properties of the white of the eye and the white of an egg.

The *Figaro*, discoursing on the death of M. Littré, stated that he was the discoverer of the gland known as Littré's gland. M. Littré who made that discovery lived about the end of the seventeenth and the beginning of the eighteenth century.

A perennial supply of criticism of this kind can be had if desired.



Yours faithfully
Rich. Reynolds

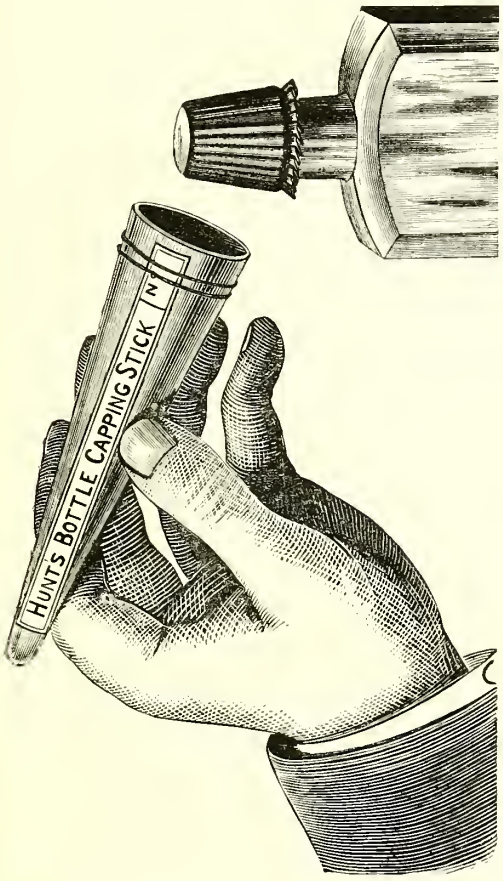
MR. RICHARD REYNOLDS, F.C.S.,

President of the British Pharmaceutical Conference, 1881.



HUNT'S BOTTLE-CAPPING STICK.

Messrs. W. F. Hunt & Co. have introduced a convenient little adjunct to their pretty paper-pleated caps for bottles, which greatly facilitates the application of these. It is simply a stick, hollow at one end, containing the cap which



is slipped over the neck of the bottle, and an elastic band drawn over the stick and left in the groove of the cap. The caps are applied in half the time and more neatly than they can be without the stick.

VEGETABLE PARCHMENT PAPER.

Messrs. Bourne & Taylor have introduced, in cheap and convenient form, vegetable parchment paper, which is quite pliable and proof against grease, water, acids, and alkalis. Both for chemists' use and sale it is desirable to have it in stock.

"Uncle Pomp," said Col. M. to a former slave, "I hear that some of you darkies down on the lower place are afflicted with the itch."

"Bein' as it's you, boss," replied old Pompey, hesitatingly, "I mus' confess dat de Lawd has seed fit to afflick us dat way, fer a fac."

"Ah! Doing anything for it?"

"Yes, sah; oh yes, sah!"

"What?"

"Why, we—er—we am scratchin' for it."—*Chicago Druggist.*

Trade Notes.

Mr. H. J. Deacon, of Beckenham, Kent, has purchased from Messrs. James & Co., of Stanhope Street, Euston Road, all the proprietary rights and business connected with "Lentilla, or Tonic Daily Food." A large photograph of the various preparations of Lentilla has been prepared as a show-card.

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We have received from Messrs. Davenport & Co., of 99 High Holborn, an illustrated catalogue of ice-making machinery, dated September, 1881. In it are drawings and descriptions of six or eight ice-making machines of various patterns and of wide range in prices, together with illustrations of refrigerators, coolers, counter apparatus for iced drinks, and many other appurtenances.

***

The Zoedone Company have lately introduced two new varieties of their well-known beverage: dry zoedone and zoedone *sans sucre*. These liqueurs attracted much notice recently at the annual meeting of the British Medical Association at Ryde. The latter is recommended as a beverage in the treatment of such diseases as diabetes, rheumatism, and gout, when it is desirable to avoid saccharine constituents.

***

The Zoedone Company.—The first annual meeting of this company was held on August 25 in London, Mr. C. Noel Hoare presiding. The report stated that the whole expenses and charges amounted to 6,208*l.*, which left a total net profit of 45,024*l.*, out of which an interim dividend at the rate of 25 per cent. per annum was paid last December, and a further similar dividend was now recommended, making a payment, free of income-tax, of 25,000*l.* for the year on the capital of 100,000*l.* Of the balance of the net profit, 15,000*l.* was carried to a reserve fund, leaving 5,024*l.* to be carried forward. The chairman, in moving the adoption of the report, which was passed, gave general details of the working of the company, and the retiring directors were re-elected.

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The day following this meeting the *Times* reported in its money article: "Among the minor markets we have to notice a fall in the shares of the Zoedone Company, in consequence of the unfavourable impression of to-day's meeting." Some people are never satisfied.

***

A year ago we reviewed shortly a pamphlet on "The True or Dukkanee Chiretta, with remarks on the Abuse of Phosphorus," published by Symes & Co., pharmaceutical chemists, Simla, East Indies. We have just received from them a second edition of the pamphlet, and a sample of Syme's Criterion Chiretta, which the pamphlet recommends in a very fair and straightforward manner. We should imagine that Indian pharmacists could not better justify their existence than by experimenting on the best means of preserving the properties of their native drugs, and preparing reliable preparations of them for the use of European practitioners. Chiretta and bael at once suggest themselves as drugs which have a higher reputation in India than in Europe; and this fact may find its explanation in the use of the fresh drug there and the dried drug here.

***

Phosphodone is the latest addition to the extensive family of tonic beverages which has come under our notice. It is manufactured by Mr. G. H. Skinner, of Exeter. Besides the usual recommendations, it may be mentioned that this water leaves the trace of a taste of cloves, which in that deumnti egree certainly increases its palatability.

Educational Information.

THE information collected in the following pages is intended to form a general guide to the selection, first, of a profession, and, secondly, of the best method of entering it. Only a bare outline of the facts is here given, but an application to the deans or secretaries of the various schools will always procure a copy of the prospectus, giving full details of the fees, course of study, and professors. An attempt has been made to collect the scattered notices of the conditions attached to the practice of pharmacy in our Colonies. In most of these it is much easier to get a living than in England, though the living will be harder in many respects. The absence of educated society, of literature, and of the beneficial restraints of life in England is to be balanced against healthier conditions of life, less mental and physical strain, and freedom from conventionalities. A conspicuously useful career is open to the man who can use his scientific training and information to develop the resources or improve the condition of a young country, while he has a great opportunity of extending our knowledge of the fauna, flora, or geology of the world. Dr. Emil Holub, the African traveller, commenced his African career as a doctor at the Diamond Fields, lodging in a shed which served alternately as surgery and bedroom, and doing his own charing under the cover of night.

PHARMACEUTICAL DIPLOMAS.

In Great Britain the right to practise pharmacy under the strange title "Chemist and Druggist" is restricted by the Pharmacy Act of 1868 to such persons as pass (*a*) the Preliminary examination, and (*b*) the Minor examination of the Pharmaceutical Society. The title of "pharmaceutical chemist" or "pharmacist" may be assumed on passing the Major examination, but the title is purely honorary and confers no additional rights or privileges beyond exemption from service on juries. In the medical profession in all countries, and in the profession of pharmacy nearly everywhere else, the candidate is required to undergo a certain course of study at a recognised school. No such curriculum is imposed on the English pharmacist. Dr. Greenhow, the official appointed by Government to inspect the pharmaceutical examinations, went apparently out of his way to show in his last report that such a curriculum is neither needful nor desirable. The present examinations, he thinks, secure the safety of the public; 70 per cent. of the candidates fail to pass them at the first attempt, and those who do pass do not seem more than the country requires and can absorb. This report was presented as usual to the Privy Council. Since its publication the Council of the Pharmaceutical Society has "generally approved" of a suggestion made by one of its Committees that a curriculum should be made compulsory. Before the curriculum can be established the Council must first agree upon all the details of the measure, and the new bye-law embodying it must be approved by a special general meeting of the Society and by one of Her Majesty's Secretaries of State. The latter official will undoubtedly be greatly influenced by the reports of his "official visitor," and the Pharmaceutical Council will have to show strong grounds of public benefit to overcome the force of Dr. Greenhow's decided opposition. At present, and probably for some years to come, the candidate for the profession of pharmacy will be allowed to obtain his knowledge how and where he pleases.

We should advise him to pass the junior Oxford or Cambridge Local examination, including Latin and Arithmetic among his subjects, before leaving school. If in any way possible, he should also acquire there a practical knowledge of the elements of chemistry such as is required for the Cambridge Local examination, and a knowledge of shorthand and of the elements of botany would also be very useful. On becoming an apprentice he should register his certificate or pass the Preliminary examination. He should then take up botany as a pastime, collecting local plants and learning practically the methods of distinguishing and naming them, and the names and forms of their parts. In winter he may concern himself with making a collection of small specimens of drugs and chemicals, labelling each one with the particulars given in the Pharmacopœia, and endeavouring to make himself thoroughly familiar with them. Practical chemical analysis should be attended to at the same time. The exercises provided by our Students' Column would prove very helpful. He should join the local Association, and devour every technical and scientific periodical that falls in his way.

The examinations conducted under the direction of the Science and Art Department provide a definite aim for study, not so remote as the Minor examination, and the apprentice will find his time usefully occupied during the first year or two of his apprenticeship in preparing himself for the advanced examinations in chemistry and botany, and the elementary examinations in magnetism and electricity, and acoustics, light, and heat. A knowledge of the elements of other branches of science will be no disadvantage to him.

While dusting his bottles daily, the apprentice ought to become familiar with the appearance and smell of every liquid preparation in the shop. His daily work should give him a practical acquaintance with pharmacy, the reading of prescriptions, and dispensing.

The youthful pharmacist who occupies the first few years of his apprenticeship in this way will find very little difficulty in preparing himself for the Minor examination as he approaches the age of 21. If his means permit, he will be wise to spend as much time as possible at a recognised school, and his previous preparation will fit him to profit to the utmost by the instruction provided there. This instruction, however valuable, is not absolutely necessary, as is proved by the number of self-taught candidates who pass the examinations.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

Candidates for the Minor examination must produce certificates of having attained the age of 21 years; and also to the effect that for three years they have been registered and employed as apprentices or students, or have otherwise for three years been practically engaged in the translation and dispensing of prescriptions. Women are admitted to all the examinations. The following are the

Regulations of the Board of Examiners for the Examination and Registration of Pharmaceutical Chemists, Chemists and Druggists, and Apprentices or Students.

In accordance with the Pharmacy Acts, 15 & 16 Vict. cap. 56; 31 & 32 Vict. cap. 121; and 32 & 33 Vict. cap. 117.

The First, or Preliminary, Examination.*

(*For Registration as "Apprentices" or "Students."*)

This examination is held at the following centres throughout Great Britain on the first Tuesdays in January, April, July, and October in every year:—Aberdeen, Birmingham, Brighton, Bristol, Cambridge, Canterbury, Cardiff, Carlisle, Carmarthen, Carnarvon, Cheltenham, Darlington, Douglas (Isle of Man), Dundee, Edinburgh, Exeter, Glasgow, Guernsey, Hull, Inverness, Jersey, Lancaster, Leeds, Lincoln, Liverpool, London, Manchester, Newcastle, Northampton, Norwich, Nottingham, Oxford, Peterborough, Sheffield, Shrewsbury, Southampton, Truro, Worcester, York. Candidates for this examination must give not less than fourteen clear days' notice on a form which can be obtained of the Registrar.

The examination is a written one, and comprises:—

Latin.—Translation into English of a paragraph from the first book of Cæsar ("De Bello Gallico"). Latin Grammar.

English.—Grammar, Composition.

The first four rules of Arithmetic, Simple and Compound, Vulgar Fractions and Decimals, and a thorough knowledge of the British and Metrical Systems of Weights and Measures.

In the case of candidates residing in the country and unable to attend in London or Edinburgh, the Registrar shall send the questions, under seal, to the person appointed

* Certificates of having passed the Local examinations of the Universities of Oxford, Cambridge, or Durham, the examination of the College of Preceptors, or those of any legally constituted Examining Body previously approved by the Council, *provided Latin and Arithmetic be included in the subjects*, are accepted in lieu of this examination.

to superintend the writing of the answers, with instructions that they be opened by him in the presence of the candidates, who shall write the answers forthwith in his presence in a given time. The questions are prepared and reported upon by the College of Preceptors.

THE BOARDS OF EXAMINERS IN LONDON AND EDINBURGH meet for conducting the Minor, Modified, and Major examinations in February, April, June (London only), July, October, and December. Candidates must give notice to the Registrar of their intention to present themselves, and pay the fee, on or before the first day of the month in which the examinations are held. A registrar's certificate of birth and a certified declaration (on a form which will be supplied on application) that for three years he has been practically engaged in translating and dispensing prescriptions must be produced by each candidate at the time of giving notice. Secretary and Registrar, in Loudon, Elias Bremridge, 17 Bloomsbury Square, London, W.C. Secretary to the Board in Edinburgh, 119A George Street, Edinburgh.

MINOR EXAMINATION.

(*For Registration under the Pharmacy Act*, 1868, *as "Chemists and Druggists."*)

Candidates for this examination must have passed the First or Preliminary examination.

The following form the subjects of examination:—

Prescriptions.—The candidate is required to read, without abbreviation, autograph prescriptions, translate them into English, and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of Posology; also to render, in good Latin, ordinary prescriptions written in English.

Practical Dispensing.—To weigh, measure, and compound medicines; write the directions in concise language in a *neat and distinct* hand; to finish and properly direct each package. In awarding marks in this subject the time taken by the candidate in doing the work is taken into account.

Pharmacy.—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, and have well-marked physical characters, such as extracts, tinctures, powders, &c.; to give the proportions of the active ingredients, and possess a *practical* knowledge of the processes, and the principles of the processes, by which they are made, and of the best excipients and methods of manipulation for forming emulsions, pills, &c.

Materia Medica.—To recognise specimens of roots, barks, leaves, fruits, resins, gums, animal substances, &c., used in medicine; give the botanical and zoological names of the plants, &c., yielding them, and the natural families to which they belong; name the countries and sources from which they are obtained, the officinal preparations into which they enter, and judge the quality and freedom from adulteration or otherwise of the specimens.

Botany.—To recognise the more important indigenous plants used in medicine. To possess a general knowledge of the elementary structure of plants, and the structure and distinctive characters of roots, stems, leaves, and their parts. To name and describe the various parts of the flower.

Chemistry.—To recognise the ordinary chemicals used in medicine. To possess a *practical* knowledge of the processes by which they are produced, the composition of such as are compound, and explain the decompositions that occur in their production and admixture, by equations or diagrams. To determine practically, by means of tests, the presence in solution of the chemicals in common use, and explain the reactions which occur in each case. To possess a general knowledge of the laws of chemical philosophy and a *practical* knowledge of the means of determining specific gravities, densities, and temperature, and of the instruments appertaining therto and the physical and chemical constitution of the atmosphere.

MAJOR EXAMINATION.

(*For Registration as "Pharmaceutical Chemists" under the Pharmacy Act*, 1852.)

Candidates for this examination must have passed the Minor examination at least three months previously.

Materia Medica.—This comprises a *practical* knowledge of the methods of estimating the value of important drugs, of obtaining their active and proximate constituents in a separate state; of identifying them and ascertaining their purity or impurity by tests.

Botany.—This comprises an intimate acquaintance with the parts of the flower, fruit, and seed; the functions and mode of arrangement of the different organs of plants; a knowledge of the general principles of classification, and of the Linnæan and De Candolle's systems. The candidate must be able to distinguish practically between each of the following natural orders:—Ranunculaceæ, Papaveraceæ, Cruciferæ, Malvaceæ, Leguminosæ, Rosaceæ, Cucurbitaceæ, Umbelliferæ, Compositæ, Gentianaceæ, Convolvulaceæ, Solanaceæ, Atropaceæ, Labiatæ, Scrophulariaceæ, Polygonaceæ, Euphorbiaceæ, Orchidaceæ, Iridaceæ, Liliaceæ, Melanthaceæ, Graminaceæ; and refer to their respective orders such specimens as may be shown to him.

Chemistry.—This comprehends an intimate knowledge of the laws of chemical philsophy, *practical* knowledge of the nature and properties of the elements and their compounds, both organic and inorganic, especially those used in medicine or the arts. The different combinations and decompositions must be explained by equation; also the *qualitative* analysis of the more important chemicals, *e.g.*, Nitrates, Chlorides, Carbonates, Sulphates, Phosphates, Oxalates, Tartrates, &c., and the detection of impurities in them, and the *volumetric* estimation of the strength of all Pharmacopœia preparations in which standard solutions are ordered to be used.

An elementary knowledge of the properties of light, heat, electricity, and magnetism is also required.

If a candidate fail to pass either of the examinations, the fee will be returned, less one guinea, but he will be admitted to a subsequent examination, after an interval of three months, on giving the usual notice and payment of the full fee.

Examination or Registration Fees and Subscriptions to the Society.

Fees.	£ s. d.	Annual Subscriptions on becoming connected with the Society.	£ s. d.
First or Preliminary (Registered as Apprentices or Students)	2 2 0	Eligible, on application to the Council, to be elected Apprentices or Students of the Society	0 10 6
Minor (Registered as Chemists and Druggists)	3 3 0	Eligible, on application to the Council, to be elected Associates of the Society	0 10 6
Major (Registered as Pharmaceutical Chemists)	5 5 0	Eligible, on application to the Council, to be elected Members of the Society	1 1 0
		Or a Life Member's Commutation Fee of Twenty Guineas.	

Chemists and Druggists in business before August 1, 1868, and registered as such, on being elected Members of the Society, pay an Entrance Fee of £2 2 0
And Subscription for the current year 1 1 0
£3 3 0

COUNCIL EXAMINATION PRIZES.

Pharmaceutical chemists who were associates of the Society at the time of passing the Major Examination will be entitled to compete for the following prizes at the end of the session, in the month of July, in which they passed the Major Examination.

First Prize.—Pereira Medal in silver, and a present of books value 5*l.*, or thereabouts, given by Mr. T. H. Hills.

Second Prize.—The Pharmaceutical Society's Medal in silver, and a present of books value 3*l.*, or thereabouts, given by Mr. T. H. Hills.

Third Prize.—The Pharmaceutical Society's Medal in bronze, and a present of books value 2*l.*, or thereabouts, given by Mr. T. H. Hills.

Subjects of Examination.—Materia Medica, Botany, and Chemistry.

PHARMACEUTICAL SOCIETY OF IRELAND.

Only one qualification—that of Pharmaceutical Chemist—is recognised by the Council. Women are admitted to examination under the same limitations as men. Licentiates of the Apothecaries' Hall, of Ireland, may be registered as Pharmaceutical Chemists without examination on payment of three guineas. The members' subscription is one guinea per annum, or a life composition of ten guineas.

The following are the regulations for candidates for the qualification of Pharmaceutical Chemist:—

PRELIMINARY EXAMINATION.

Latin.—To translate into English, and parse, one or more sentences from a Latin author:—Cæsar's "Commentaries," First Book; or Virgil's "Æneid," First Book.

English.—To write on a subject selected by the examiner, and to write from dictation.

Arithmetic.—The first four rules, simple proportion, and decimals. To describe the weights and measures of the Pharmacopœia, and of the metric system.

The Rudiments of Chemistry and Botany.—(See Roscoe's "Chemistry"—Science Primers, and Browne's "Botany"—Elementary Science Manuals.)

Candidates presenting themselves for this examination must not be under sixteen years of age.

The fee for this examination will be 2*l.* 2*s.*

In case of rejection, the fee to be retained, but a rejected candidate may present himself for examination after a lapse of six months without additional payment.

Preliminary examinations are held on the first Monday of January, April, July, and October.

PHARMACEUTICAL EXAMINATION.

Candidates presenting themselves for this examination must be twenty-one years of age, and have passed the Preliminary Examination at least one year previously.

Candidates must also have been practically engaged in compounding and dispensing for at least two years, under the instruction of a pharmaceutical chemist or apothecary, and must produce a certificate of having attended a practical course in chemistry in either Trinity College, Royal College of Surgeons, Carmichael College, and the Queen's Colleges of Belfast, Cork, and Galway, or Royal College of Science.

Examinations are held on the first Wednesday of January, April, July, and October.

Botany.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

Materia Medica.—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the officinal preparations into which they enter; and to detect adulterations.

General and Pharmaceutical Chemistry.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia, to describe the processes by which they are obtained; qualitative analysis, including the tests of the Pharmacopœia and volumetric analysis; and to submit to a practical examination in these subjects when required.

Practical Pharmacy.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly.

To explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them.

Candidates are to give notice to the Council, seven clear days before the stated meetings for examination, of their desire to be examined; and also to lodge a receipt of having paid the fee of five guineas into the Bank of Ireland to the credit of the Society.

In case of rejection, the fee will be retained, but a rejected candidate may present himself for re-examination after a lapse of six months.

FORM OF NOTICE.—"*I,*_____, *desire to be examined for the licence to act as a Pharmaceutical Chemist.*"

Mr. H. J. Fennell, College of Physicians, Kildare Street, Dublin, will give any additional information required.

PHARMACEUTICAL SCHOOLS.

There are, as we have stated, no schools where a pharmaceutical candidate is required to attend before he offers himself for examination. In most instances, however, the student finds it desirable if not essential to avail himself of the advantages which an organised school offers. The following are the principal establishments where special pharmaceutical instruction is provided:—

THE SCHOOL OF PHARMACY,

17 Bloomsbury Square, W.C.

This school is conducted on the premises of the Pharmaceutical Society, but it is not under the direct control of the Council, nor does the Society derive any profit from the fees paid by students. The Society not only provides laboratories, lecture-theatre, &c., rent free, but further contributes 100*l.* per annum towards the salary of each of the professors. The appointment of the professors is also in the hands of the Council.

Application for admission to the school, for prospectuses, or for further information, may be made to the professors or their assistants in the Lecture Room or Laboratories, 17 Bloomsbury Square, London, W.C.

PROFESSORS.

CHEMISTRY AND PHARMACY	Professor REDWOOD, F.C.S.
BOTANY AND MATERIA MEDICA ..	Professor BENTLEY, F.L.S.
PRACTICAL CHEMISTRY	Professor ATTFIELD, F.C.S.

The thirty-ninth Session, 1880-81, will commence on October 5, 1881, and terminate on July 29, 1882.

CHEMISTRY AND PHARMACY.

	£	s.	d.
One Course	3	3	0
An entire Session (two Courses)	4	4	0
Perpetual admission	5	5	0

To connect this course with that of practical chemistry, the demonstrator, Dr. Alfred Senier, will assist at the lectures, and at the after-lecture examinations.

BOTANY AND MATERIA MEDICA.

	£	s.	d.
Botany and Materia Medica, one Course (five months) ..	2	2	0
An entire Session (two Courses), including Systematic and Practical Botany	3	3	0
Systematic and Practical Botany, separately	1	1	0
Perpetual Admission to all the Courses	4	4	0

A student entering for the first course on Botany and Materia Medica is also entitled to attend the lectures on Systematic and Practical Botany on payment of two guineas and a half at the time of entering this first course in October.

PRACTICAL CHEMISTRY.

Professor of Practical Chemistry ..	DR. JOHN ATTFIELD, F.C.S.
Demonstrator	DR. ALFRED SENIER, F.C.S.
Assistant-Demonstrator	MR. W. R. DUNSTAN, F.C.S.

FEES.

Hours of Study	One Month	Two Months	Three Months	Five Months	Ten Months
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
10.0 to 5.0 daily (Sat. 10.0 to 2.0)	4 4 0	7 7 0	10 10 0	15 15 0	26 5 0
10.0 to 5.0 on any 3 days weekly ..	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
10.0 to 5.0 on any 2 days weekly ..	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0
Any 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
Any 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

NORTH BRITISH BRANCH OF THE PHARMACEUTICAL SOCIETY.

119A George Street, Edinburgh.

The following classes are open to pharmaceutical students:—

Chemistry.—Dr. Stevenson Macadam, daily, at Surgeons' Hall. November to April.

Practical and Analytical Chemistry.—Dr. Macadam's laboratory is open daily. Courses are also given at the New Medical School.

Materia Medica.—Dr. F. W. Moinet. The course extends from November to January and May to July.

Dr. Wm. Craig lectures at the New School of Medicine.

Botany.—Professor Dickson. May to July.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

62 Lambeth Road, London, S.E.

Proprietors—Messrs. WILLS & WOOTTON.

The session extends from September 1 till July 25.

Two classes of students are received, and 400 lectures are delivered on the following subjects:—Latin, Dispensing, Pharmacy, Botany, Materia Medica, Chemistry, Physics.

Fees.—Preliminary course, one month, 2*l.* 2*s.*, or until qualified, 5*l.* 5*s.*; Minor course, one month, 3*l.* 3*s.*, three months, 7*l.* 7*s.*, inclusive fee until qualified, 10*l.* 10*s.* (For this fee all books and apparatus are supplied free of cost.) Major course, one month, 3*l.* 3*s.*, until qualified, 7*l.* 7*s.*; a fraction of a month being charged at the same ratio. Fee to old students according to arrangement. Accommodation is provided for resident pupils. Terms, 1*l.* 1*s.* per week. Students work independently, and can therefore enter at any time. Those who wish to pass the Apothecaries' Hall examination before leaving the college are prepared free of cost.

Medals and certificates are awarded at examinations held in April, July, and December in each year.

Evening Classes are held for gentlemen engaged during the day. Major: Monday, Practical Chemistry, 7 till 9. Class 9 till 10. Minor and Modified: Tuesday, Wednesday, and Thursday, Practical Chemistry, 7 till 8.30. Lectures, 8.30 till 10. Preliminary: Friday, 7 till 9.

Terms for Evening Classes—Major, one month, 8*s.*; three months, 1*l.* 1*s.*; until qualified, 5*l.* 5*s.* Minor, one month, 6*s.*; three months, 15*s.*; six months, 21*s.*; for the entire course (twelve months), 1*l.* 11*s.* 6*d.* Preliminary, one month, 4*s.*; three months, 10*s.* 6*d.*; until qualified, 3*l.* 3*s.*

Postal System.—Fee for Preliminary Examination, 10*s.* 6*d.*; for Modified, Minor, or Major, 1*l.* 1*s.* Courses of lectures on all the subjects of the examinations are sent through the post from the College, the student returning his last lecture when he receives a new one.

THE SOUTH LONDON SCHOOL OF PHARMACY.

325 Kennington Road, S.E.

Director—Dr. JOHN MUTER, M.A. Secretary—Mr. WM. BAXTER.

The session commences on September 15, and lasts till July 25, and the following courses of lectures, etc., are delivered at least twice during the session:—Botany: A course of thirty lectures. Materia Medica: A course

of thirty lectures. Theoretical Chemistry: A course of sixty lectures. Practical Chemistry: I. Junior Course (three months):—This includes—1. The manufacture of the chief chemicals of the B.P., in which the processes are typical; 2. Qualitative analysis, and separation of bases and acids. II. Senior Course (six months):—This extends to—I. Qualitative analysis of mixtures. 2. Quantitative analysis of B.P. substances, gravimetric and volumetric; 3. Ultimate organic analysis.

Fees.—1. For the whole course of lectures (including admission to the museum), 4*l.* 4*s.* 2. For the laboratory—Junior Course, one month, 3*l.* 3*s.*; three months or over at 2*l.* 2*s.* a month; Senior Course, first month, 4*l.* 4*s.*; three months or over at 3*l.* 3*s.* a month. A pharmaceutical tutorial department is devoted to teaching each student either privately or in small classes. The usual average cost for each examination is 10*l.* 10*s.*

Over 1,500 persons from this school have passed the Pharmaceutical Examinations. Instruction in Microscopy and General and Food Analysis is given to medical officers of health and others.

Central School of Chemistry and Pharmacy.

173 *Marylebone Road, London, N.W.*

Teacher of Chemistry and Physics: Mr. A. P. Luff, B.Sc., F.C.S., F.L.S. F.I.C.; Teacher of Pharmacy, Botany, Materia Medica, &c.: Mr. J. Woodland, F.C.S., F.L.S. The session extends from September 1 to July.

A register of lodgings is kept at the school for the convenience of students.

A class in Practical Dispensing is held; fee, 10*s.* 6*d.* A well-fitted laboratory is attached to the school; students are required to provide themselves with some apparatus and chemicals.

Fees (payable in advance):—One month, 4*l.* 4*s.*; two months, 7*l.* 7*s.*; three months, 9*l.* 9*s.*; the entire session, 15*l.* 15*s.* Students wishing to attend the classes on Chemistry and Physics only, can do so by payment of 1*l.* 1*s.* per month.

Students wishing to enter their names, and for further particulars, are requested to apply to Messrs. Luff & Woodland, 173 Marylebone Road, N.W.

Edinburgh School of Pharmacy and Chemistry.

Marshall Street, Nicolson Square, Edinburgh.

The classes in Chemistry qualify for graduation in Science and Medicine at the University of Edinburgh, and all other examining boards in Medicine in the United Kingdom. The Pharmaceutical courses are conducted separately from the qualifying instruction. Besides the usual day classes, there are evening classes for gentlemen engaged in business during the day. A dispensary is attached to the School, in which the students are instructed in Practical Pharmacy and Dispensing.

Lecturers:—Chemistry: Dr. Drinkwater; Materia Medica and Pharmacy: Dr. Urquhart; Botany: Mr. McAlpine, B.Sc.

The Practical classes are conducted by the lecturers on Pharmacy and Chemistry, respectively.

Fees for the session (3 months) Materia Medica, 2*l.* 2*s.*; Chemistry, 2*l.* 2*s.*; Pharmacy, 1*l.* 1*s.*; Practical Chemistry, 2*l.* 2*s.*; Botany, 1*l.* 1*s.*; Composition fee for a second season, 5*l.* 5*s.*

The Pattison Scholarship.—The holder is entitled to free instruction in all the branches taught in the Pharmaceutical Section of the school. It is awarded by competitive examination twice yearly. Candidates are required to produce their apprenticeship indentures duly discharged, and must have passed the Preliminary Examination. Successful candidates, when their scholarship expires, must present themselves for the Minor Examination. The subjects of the scholarship examination are pharmacy, materia medica, and the elements of chemistry.

All information will be supplied by the secretary, Dr. Urquhart.

The West Central School of Chemistry and Pharmacy.

19 *Great Coram Street, Russell Square, W.C.*

Principal—Mr. Henry Judd.

The Evening Classes for Pharmaceutical Students are the oldest-established in the kingdom, having reached their thirteenth half-yearly session. They are held throughout the week, from 7.30 to 10 p.m., viz., Monday, Preliminary; Tuesday, Wednesday, Thursday, and Friday, Minor. A Preliminary Class is held at 3.30 on Wednesdays, conducted alternately by the Principal and C. P. Marriott, M.A.

Fees (payable in advance, or by instalments).—Preliminary, for the full term of three months, 2*l.* 2*s.* (proportionably less between terms). Minor, inclusive until successful, 10*l.* 10*s.*; one night weekly, for three months from entrance, 2*l.* 2*s.*; two nights weekly, ditto, 3*l.* 3*s.*; three nights weekly, ditto, 3*l.* 13*s.* 6*d.*; Private Tuition for any Examination, per hour, 3*s.* 6*d.* Major—Students are only received for private tuition, and country students are supplied with lectures to be copied at a guinea a set.

Edinburgh School of Medicine,

Minto House.

Special classes for students of pharmacy are held here. For particulars apply to the Secretary.

South-west London Central School of Chemistry and Pharmacy,

183 *King's Road, Chelsea, S.W.*

Director, W. H. Martin, M.S.C.I. Lectures are delivered daily in Latin, botany, materia medica, pharmacy, theoretical and practical chemistry, and physics. Fees (payable in advance):—One month, 3*l.* 3*s.*; each succeeding month, 2*l.* 2*s.*; the session of three months, junior course, 6*l.* 6*s.* inclusive; senior course of six months, 10*l.* 10*s.* inclusive. The entire session of nine months, 13*l.* 13*s.*, with the use of apparatus, laboratory, and practical dispensing class. Two or more students in one family at a special fee. Students who cannot avail themselves of the day classes can study chemistry and physics with laboratory work during the evening. Fees: One month, 1*l.* 1*s.*; each succeeding month, 10*s.* 6*d.*

Tully's Postal System.

Mr. John Tully, of 52 Camden Road, Tunbridge Wells, "Hill's Prizeman," established his postal system in 1872. It is divided into three classes. No. 1 is for the Preliminary, including all the subjects of the syllabus. If the student fail on first presenting himself, he is instructed for the next examination free of charge, providing he passes it within six months. No. 2 is for the Minor Examination for students under 20 years of age. It is intended to give direction to the studies, and to prevent the formation of an inattentive habit of reading. It includes monthly examination papers to be answered, and lectures which cover all the ground for the Minor and Major. Students must be between 16 and 20 years of age; they can commence at any time, but must continue for not less than six months. The fee is a guinea a year, payable half-yearly in advance. No 3 is for the Minor for students over 20, and includes a full series of lectures. Fee, one guinea, payable in advance. A special course is organised for the Modified and Apothecaries' Hall Examinations.

APOTHECARIES' ASSISTANTS' EXAMINATIONS.

In the eye of the law only licentiates of the Apothecaries' Society are apothecaries. By sections 17 and 20 of the Apothecaries' Act of 1815 a penalty of 5*l.* is imposed on any person who acts as an assistant to any apothecary to compound and dispense medicines without having obtained a certificate of fitness and qualification from the Court of Examiners. By section 19 of the Act the fee for the assistants' certificate is fixed at two guineas.

This certificate is not worth much to a chemist. The chemist's assistant who becomes a doctor's is generally thought to have dropped out of the race, and apothecaries form such a small proportion of the medical practitioners that the need for the certificate must be rarely felt. It should be clearly understood that there is no penalty for acting as assistant to any medical practitioner other than an apothecary, and this oversight seems to show that at the time the Act was passed none of the other medical practitioners ever thought of dispensing their own medicines. This view is supported by the fifth section of the Act, which compels apothecaries to dispense the prescriptions of all physicians licensed to practise by the Faculty of Physic in London or the Universities of Cambridge and Oxford, under penalties increasing to forfeiture of their certificate on the third offence.

The only privilege conferred by the certificate is the power to act as assistant to apothecaries; that is, to a single small class of medical practitioners. We have never heard of a case in which the penalty was enforced for so acting, and like other sections of the Act, this seems to have fallen entirely out of use.

The following are the regulations of the Court of Examiners relating to assistants:—The Court of Examiners meet in the hall every Thursday, where candidates are required to attend at a quarter before five o'clock.

Every candidate intending to offer himself for examination must give seven days' notice previous to the day of examination, and must at the same time deposit the fee, two guineas, at the office of the beadle, where attendance is given every day, except Sunday, from ten to four o'clock; Saturdays, ten to two.

The examination of candidates for certificates of qualification to act as assistant, in compounding and dispensing medicines, will be as follows:—In translating physicians' prescriptions, in the British pharmacopœia, in pharmacy, pharmaceutical chemistry, materia medica, and medical botany.

By the 22nd section of the Act of Parliament no rejected candidate can be re-examined as an assistant until the expiration of three months.

In 1880 the following additional regulations were promulgated for the subject of botany:—

Candidates will be expected to display a competent knowledge of structural and physiological botany, such as may be obtained from lectures and from any elementary work.

They will be expected to describe and identify typical specimens, and to give the distinguishing characters of the following natural orders, viz:—Compositæ, convolvulaceæ, cruciferæ, cucurbitaceæ, filices, gentianaceæ, graminaceæ,

labiatæ, leguminosæ, liliaceæ, melanthaceæ, papaveraceæ, ranunculaceæ, rosaceæ, rutaceæ, scropulariaceæ, solanaceæ, umbelliferæ.

PHARMACY ABROAD.

NEARLY every young pharmacist turns his thoughts to other countries when he is looking for a field for his energies.

European States offer him no greater advantages than he has at home. The United States of America are not often considered from this point of view. In the comparatively few Eastern States in which a pharmacy law is in force the ground is probably well occupied. In the Western States there must be better openings, but for many years we have heard nothing of the state of pharmacy there.

In Canada pharmacy is under regulations resembling our own, but more stringent in the Province of Quebec, where assistants must be qualified.

In South Africa there is an expanding field for enterprise. In Cape Colony a licence to keep open shop must be obtained from the Medical Board, but assistants need not be qualified. The British diploma is considered a sufficient qualification. Society there resembles English, and the climate is fine.

In Australia the practice of pharmacy is restrained only in Victoria. New South Wales is endeavouring to obtain a Pharmacy Act, and New Zealand has recently acquired one. The British diploma is fully recognised there.

The countries we have mentioned have a climate sufficiently like our own to be free from objection on this point. In Africa and Australia a chemist of good character would be sure to get employment. He must, however, be prepared to "rough it," and to turn his hand to other work if no opening presented itself in his own handicraft. One pharmacist we know accepted an engagement as clerk to an up-country butcher in Cape Colony. It is well to take letters of introduction or recommendation from responsible persons, such as ministers of religion. A young man with about 15*l.* beyond his passage-money may venture to emigrate without rashness.

Tropical countries, objectionable on account of climate, offer few inducements to pharmacists. In India and Ceylon there is no pharmacy law; but the European population does not increase much, and its wants are supplied by old-established houses. We have never heard of an opening for the foundation of a new business. The same may be said of the Chinese Treaty ports, Japan, the West Indies, and British Guiana. The houses in existence require a limited supply of assistants. Vacancies are generally supplied through private sources. Engagements are commonly made for a term of four years. Board, lodging, and medical attendance, as well as passage out and back, are usually provided by the firm. The salary, however, though apparently large, is very likely to consume as fast as the meaner English emoluments. The golden rule for the preservation of health in these hot climates is to abstain rigidly from all alcoholic beverages. This, and flannel wrappings round the loins, will ward off liver complaints and dysentery almost without fail.

The following notes give rather more detailed information concerning the different countries:—

CANADA (ONTARIO).—The Pharmacy Act came into operation on July 1, 1871. No unregistered person may assume the title "chemist and druggist," or any similar name, or keep open shop for compounding medicines or for the sale of poisons. Persons wishing for registration must pass the examination appointed by the Ontario College of Pharmacy. We do not know if the College accepts the British diplomas as qualifications for registration. Dr. A. W. Wallace gives some further details in the *Medical Press and Circular* for August 31:—"There are hardly any medical men who keep 'open shop,' the licensed pharmacists never prescribe, but keep 'drug stores' where prescriptions are compounded, and patent medicines sold; these last forming an important branch of trade. Medical men have an office or surgery attached to their private house where they keep some drugs and give 'advice and medicine' to the working classes for a dollar or 75c. The usual fee is a dollar a visit. Prescriptions are given to the wealthier classes."

QUEBEC.—Pharmacists were to a limited extent under the control of the Medical Board from the year 1787 to 1875. Among other laws which were proposed, but which never reached the statute-book, was one compelling apothecaries or chemists to keep their shops open from 6 A.M. to 9 P.M. during three-quarters of the year. The Pharmacy Act commenced its operations on May 1, 1875. Only licentiates in pharmacy may sell poisons or dispense prescriptions. No unregistered apprentice or clerk may be employed to do either of these things. The examination for the registration of apprentices corresponds to the British Preliminary with the addition of French, that for a certified clerk resembles the Minor, and that for the licentiate in pharmacy is equivalent to the Major, with the addition of a curriculum of two sessions. We do not know if the English diplomas are accepted by the Pharmaceutical Association, which is the examining and registering body.

SOUTH AFRICA, CAPE OF GOOD HOPE.—No diploma is required by an assistant, but to open shop he must pass an examination before the Medical Board of the Colony, or be connected with the Pharmaceutical Society of Great Britain. Salaries for assistants are about 5*l.* to 7*l.* a month, with board and lodging. Steady, respectable men on the spot will find very little difficulty in getting a situation, and if frugal would be able to save enough to start in business. Openings for this are not scarce. The climate is very healthy, the society is much like English, and the danger from hostile races very small. A dialect of Dutch is spoken by some residents, a knowledge of which is useful to the chemist.

AUSTRALIA, VICTORIA.—A Pharmaceutical Society has existed here since 1857. There is a Pharmacy Act in operation, modelled on our own. No certificate is required by assistants, but no one can commence business unless registered. A British certificated chemist and druggist is eligible for registration in the colony. Uncertificated men must produce certificates that they have undergone a four years' apprenticeship, and that they have attended one course of lectures at a recognised school. On passing an examination, they are then entitled to registration.

NEW SOUTH WALES.—The Pharmaceutical Society here have instituted Minor and Major examinations, and have been endeavouring to obtain a Pharmacy Act similar to that in force in Victoria. Up to the time of writing we have not heard of their success.

NEW ZEALAND.—At the census of 1878 the colony contained 273 chemists and druggists and assistants, with a population of 414,412. The Pharmaceutical Society was established in 1879, and the Pharmacy Act was passed in 1880. No person can use the title of "pharmaceutical chemist" or any similar one unless registered in the colony. The persons entitled to be registered as pharmaceutical chemists are those (1) who had carried on the business of a chemist and druggist or homœopathic chemist in the colony for not less than two months before January 1, 1881; (2) who had been dispensing assistants, or assistants in a chemist's shop or public institution for not less than six months before January 1, 1881; (3) who hold a certificate as pharmaceutical chemist, or chemist and druggist, from the Pharmaceutical Society of Great Britain, or from any college or Board of Pharmacy to be recognised by the New Zealand Board of Pharmacy.

INDIA.—In India no licence is required for the practice of pharmacy. There are, however, comparatively few European pharmacies, nearly all being long established and connected with the garrisons. The bulk of the trade is in the hands of the natives. The letters of our "Roving Correspondent," published in this journal in 1879 and 1880, give the most recent picture we have of pharmacy in India.

MEDICAL EDUCATION.

WHEN it has been determined to devote a young man or woman to the profession of medicine, the first point to determine is the portal at which he shall enter it. All the Universities and nine other bodies have the power of admitting persons to the legal practice of medicine. Their regulations, though similar on the whole, differ greatly in details from the preliminary to the final examination. It

is advisable to pass the preliminary examination before leaving school.

The student must afterwards spend at least four winter sessions or three winter and two summer sessions in professional study at some recognised school. As soon as convenient he should enter his name on the books of one of the hospital schools mentioned hereafter. He must also be registered as a medical student with the General Medical Council, but the dean or secretary of the school almost invariably undertakes this duty. During his attendance at this school he must undergo certain courses of instruction which vary somewhat according to the regulations of the licensing bodies. After attaining the age of 21 he may present himself for the final examination, when, if successful, he will receive a licence to practise medicine within the borders of Great Britain and Ireland. To secure the full legal enjoyments of his rights he must register his qualifications at the office of the General Medical Council. Registration confers on him the right to recover his fees in a court of law, to hold public appointments, and to sign legal certificates. A single diploma in medicine or in surgery is sufficient qualification for the legal practice of medicine, but only persons holding a qualification in both medicine and surgery can receive any public appointment.

Below we give brief summaries of the regulations for the various preliminary examinations; second, of the fees and course of study required by the different licensing bodies; and lastly, of the fees for the course of study at the hospital schools. In each case it will be well to apply to the secretary for the prospectus or regulations, which will give many details that we are unable to include in this summary.

Preliminary Education.

The recommendations of the General Medical Council, as far as relate to the preliminary examination, and at present in force, are as follows:—No student should be admitted to his final examination till 45 months have elapsed since his registration. No student can be registered before he has passed an examination conducted by one of a certain number of educational bodies in the following subjects:—(1) English language, including grammar and composition; (2) arithmetic, including vulgar and decimal fractions; algebra, including simple equations; (3) geometry—first two books of Euclid, or the subjects thereof; (4) Latin, including translation and grammar; (5) one of the following optional subjects:—Greek, French, German, elementary mechanics of solids and fluids (meaning thereby mechanics, hydrostatics, pneumatics, and hydraulics).

As no one less than 21 years of age is allowed to practise medicine, medical training generally begins at the age of 17. It is advisable that before leaving school the student should pass one of the examinations now to be mentioned:—

Oxford, Cambridge, and Durham.—Local examinations: Senior, including Latin and Mathematics, or Junior, including Latin and Mathematics, and one of the following optional subjects:—Greek, French, German, Natural Philosophy (including mechanics, hydrostatics, and pneumatics).

London (Matriculation Examination), Edinburgh, Aberdeen, Glasgow, and St. Andrew's.—Honours or Senior certificates granted under local examinations (to include English Literature, Arithmetic, Algebra, Geometry, Latin, and one of the following optional subjects:—Greek, French, German, Natural Philosophy).

Queen's University (Ireland).—Local examinations for men and women. Certificates to include all the subjects previously mentioned.

Royal College of Preceptors.—First-class certificate.

A degree in Arts from any British, and nearly any colonial, University is accepted in place of these examinations. Oxford Responsions and Moderations, and Cambridge Previous examination, and their equivalents at other Universities, are also accepted.

If neither of these has been undertaken, the student must pass one of the entrance examinations held by the medical licensing bodies.

Durham University.—Registration examination for medical students. Subjects—Rudiments of Religion, Literature, and Science.

Aberdeen, Edinburgh, Glasgow, and St. Andrew's Universities.—Preliminary examination for graduation in medicine or surgery. Subjects—English, Latin, Arithmetic, Elementary Mathematics and Mechanics, and two, at least, of the following:—Greek, French, German, Higher Mathematics, Natural Philosophy, Natural History, Logic, Moral Philosophy. For further information apply to the Secretaries of the Universities.

Royal College of Surgeons of England, Lincoln's Inn Fields, London.—The examination is conducted by the Royal College of Preceptors. Subjects:—Dictation, Grammar, Composition, Arithmetic to Decimal Fractions, Geography of Europe, English History, Euclid, books I. and II., Algebra to Simple Equations, Cæsar's "De Bello Gallico," and one or not more than four of the following:—Xenophon's "Anabasis," book I., Saintine's "Picciola," Schiller's "Wilhelm Tell," Elementary Mechanics, Chemistry, Botany, and Zoology. Held in March and September. Candidates must apply for the prescribed form of application at least a month, and must send it in at least three weeks, before the examination. Fee, 2*l*. This is one of the most popular entrance examinations.

Society of Apothecaries, Blackfriars, London, E.C.—Held on the last Friday and Saturday in January and April, and the third in September. A form of application must be obtained and signed. Fee, 1 guinea, to be paid at least a week before the examination. For further information apply to the Beadle.

Royal College of Physicians and Royal College of Surgeons, Edinburgh.—English Grammar and Composition, Arithmetic to Decimals, Algebra to Simple Equations, Euclid, books I. and II., Latin, and one of the following:—Greek, French, German, Natural Philosophy. Fee, 10*s*., to be paid not less than two days before the examination. For dates of examination, &c., apply to the officers of the Colleges.

Faculty of Physicians and Surgeons of Glasgow.—Preliminary examination, much like the above. Held in April, July, September, and October. For further information, apply to the Clerk.

Apothecaries' Hall of Ireland—English Grammar, Composition, and History, Arithmetic, Algebra to Simple Equations, Euclid, books I. and II., Latin, Livy, or Virgil's "Æneid," first two books, Greek, Xenophon's "Anabasis" or Homer's "Iliad," book I., French *or* German, and either of the following:—Natural Philosophy and Natural History. Held on the third Thursday in January, April, July, and October. Apply to the Secretary.

Royal College of Surgeons of Ireland.—Apply to the Registrar.

Pursuant to a resolution passed by the General Council at its meeting on July 14, 1880, the changes made by the Council in its regulations for preliminary general education will, from January 1, 1882, be as follows:—On and after January 1, 1882, no person shall be allowed to be registered as a medical student unless he shall have previously passed a preliminary examination in the subjects of general education as specified in the following list:—(1) English language, including grammar and composition;* (2) English history; (3) modern geography; (4) Latin, including translation from the original and grammar; (5) elements of mathematics, comprising (*a*) arithmetic, including vulgar and decimal fractions; (*b*) algebra, including simple equations; (*c*) geometry, including the first two books of Euclid, or the subjects thereof; (6) elementary mechanics of solids and fluids, comprising the elements of statics, dynamics, and hydrostatics;† (7) one of the following optional subjects:—(*a*) Greek; (*b*) French; (*c*) German; (*d*) Italian; (*e*) any other modern language; (*f*) logic; (*g*) botany; (*h*) elementary chemistry.

Professional Education.

M.B. Degree	Age at Examination	Preliminary Requirements	Duration of Study (*a*)		No. of Examinations	Fees
			Total	At own School or Residence		£ s.
London ..	21	Matriculation or arts degree and preliminary scientific examinations	4 years	—	2	10 0
Cambridge ..	(*b*)	"Previous (*c*) examination"	5 years	—	3	5+?
Oxford ..	(*b*)	B.A. (*c*)	4 years	—	2	—
Durham ..	21	Degree in arts	4 years	1 year Newcastle	2	17 5
Edinburgh, Glasgow, Aberdeen, St. Andrew's	21	Degree in arts or preliminary with additions	4 years	2 in Edinburgh	3	15 15
Dublin ..	(*b*)	B.A. and "previous medical"	4 years	3 courses	—	16 0

* The General Medical Council will not consider any examination in the English language sufficient that does not fully test the ability of the candidate:—(1) To write sentences in correct English on a given theme, attention being paid to spelling and punctuation as well as to composition; (2) to write correctly from dictation; (3) to explain the grammatical construction of sentences; 4) to point out the grammatical errors in sentences ungrammatically composed, and to explain their nature; and (5) to give the derivation and definition of English words in common use.

† This subject may be passed either as preliminary, or before, or at the first professional examination.

M.D. Degree	Age at Examination	Preliminary Requirements	(a) Duration of Study	(a) Duration of Practice	Examinations or Thesis	Fees
						£ s.
London ..	—	M.B.	2 or 1 + 3 or 5		Examination	5 0
Cambridge ..	—	M.B. or M.A.	— / 5 years	3 years or 9 terms / —	— / Essay / 3 examinations and essay	— / — / —
Oxford ..	—	M.B.	—	3 years	Dissertation	—
Durham ..	24	M.B.	—	2 years	Essay	6 0
Or	40	Registration as practitioner	—	15 years	Examination	52 10
Edinburgh, Glasgow, Aberdeen, St. Andrew's (d)	24	M.B.	—	2 years	Thesis	15 5
Dublin (Trinity College)	—	M.B.	—	3 years	"Exercise"	13 0
Queen's University, Ireland ..	—	Entrance examination in arts	4	—	3 examinations	5 0

Surgical Degrees	Age at Graduation	Preliminary Requirements	Duration of Study	Duration of Practice	Examinations	Fees
						£
B.S. London ..	—	M.B.	1 course	—	1	5
M.S. London ..	—	B.S.	2 years, or	5 years	1	5
M.S. Cambridge	—	M.B.	3 years	—	1	—
M.S. Durham..	—	M.B.	1 course	—	1	—
C.M. Edinburgh Glasgow	21	Degree in arts, or preliminary with additions	4 years / 2 in Edinburgh	—	3	— / —
B.S. Dublin ..	—	B.A. and M.B.	4 years	—	1	10
M.S. Dublin ..	—	B.S.	—	3 years	1	11
M.Ch. Queen's University	—	Entrance examination in arts	4 years	—	—	—

Other Licences to Practise	Age at Examination	Preliminary Requirements	Duration of Study	Duration of At a Special School	Number of Examinations	Fees
						£ s.
University of Durham— Licence in medicine and licence in surgery	—	—	—	—	—	—
University of Dublin— Licentiate in medicine or surgery	(b)	2 years of "arts" studies	4 years	3 courses	—	10 0
Royal College of Physicians, London— Licentiate	21	Preliminary	45 months	—	3	15 15
Member	25	Degree in arts	5 years	—	3	31 0
Royal College of Surgeons— Licentiates ..	21	Preliminary	4 years	—	2	9 9
Members	21	Degree in arts and L.R.C.S.	4 years	—	2	22 0
Fellows	25	M.R.C.S.	6 years	—	2	31 10
Royal College of Physicians, Edinburgh— Licentiate	21	Preliminary	4 years	—	2	15 15
Member	24	L.R.C.P.	—	—	—	21 0
Fellow	25	M.R.C.P.	—	—	—	31 10 and 25l. stamp

Other Licences to Practise	Age at Examination	Preliminary Requirements	Duration of Study	No. of Examinations	Fees
					£ s.
Royal College of Surgeons, Edinburgh— Member ..	21	Preliminary	45 months	2	15 15
Faculty of Physicians and Surgeons, Glasgow (e)	21	Preliminary	45 months	2	15 15
King's and Queen's College of Physicians in Ireland— Licence ..	—	Preliminary	4 years	2	16 16
Membership..	25	Licentiate	—	—	21 0
Royal College of Surgeons, Ireland— Licenciate ..	—	Preliminary, including Greek	4 years	2	27 6
Fellowship ..	25	B.A.	6 years	1 (with thesis)	36 15 (unless licentiate)
Apothecaries' Hall of Ireland— Licence for medicine & pharmacy	21	Preliminary	4 years, 1 practical pharmacy	2	—

(a) In each case the duration of study is to be taken as additional to the preliminary requirements.

(b) Twenty-one is the lowest age accepted by the General Medical Council, but not definitely fixed by the University.

(c) The student must reside three years at the University.

(d) The University of St. Andrew's grants degrees of Doctor of Medicine to practitioners 40 or more years of age, under special regulations.

(e) A conjoint examination for a double diploma is held by the Royal College of Physicians, Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow.

NOTE.—Royal College of Surgeons and Royal College of Physicians, Edinburgh, hold a joint examination in medicine and surgery. Successful candidates receive the diplomas of L.R.C.P.E. and L.R.C.S.E. —a double qualification, which is registrable under the Medical Act.

MEDICAL SCHOOLS.

THE choice of a medical school is always a difficult matter. It is almost impossible for an outsider, or, indeed, for the professors themselves, to form any idea of the relative merits of the different schools. The mere popularity of a school is indicated by the number of students attending it, but popularity is by no means a good test of excellence.

At the large schools the student is lost in the crowd, and, unless he has exceptional abilities, he probably comes rarely into contact with the professors. At the smaller schools there is more direct intercourse between them, but the appliances for teaching are not so complete, and the stimulus of competition is not so great.

It is a very great advantage to the student to get his training at two or more schools. He gets two ways, at least, of looking at things, and his mind will be far readier to look for ideas in many directions.

The considerations of convenience, distance, and lodging are generally those which influence most the choice of a school, and the merits of the different professors are now so nearly equal that these considerations may have full weight.

We give beneath the names of the different Medical Schools, with the number of beds in the hospitals attached, and the fees for the whole course of four years. These can be paid in one sum in advance or in instalments differing at each hospital.

Further information concerning many of them will be found in our advertisement pages.

St. Bartholomew's Hospital, West Smithfield, E.C.—710 beds. Fees for perpetual attendance on lectures and hospital practice, 132 guineas, or 125 guineas in advance; for dental students, 63 guineas.

Charing Cross Hospital.—180 beds. Fees for matriculated students (students who enter for their whole course at the hospital), 91*l.* 7*s.* in five instalments; for dental students, 42*l.* 2*s.* Matriculated students enjoy special advantages.

St. George's Hospital, Hyde Park Corner, S.W.—351 beds. Fee for the whole course, 125*l.* in advance; for dental students, 55*l.*

Guy's Hospital, St. Thomas's Street, Borough, S.E.—695 beds. Fee, 125 guineas in advance; for dental course, 63 guineas.

King's College, Strand, W.C.—170 beds in hospital. Fee, 125*l.* in advance.

London Hospital, Mile End, E.—800 beds. Fees, 90 guineas in advance; dental course, 40 guineas.

St. Mary's Hospital, Cambridge Place, Paddington, W.—190 beds. Fee, 119 guineas in advance; for dental students, 62½ guineas.

Middlesex Hospital, Berners Street, W.—300 beds. Fee, 90*l.*; for dental surgery, 42*l.*

St. Thomas's Hospital, Albert Embankment, Westminster Bridge.—572 beds. Fee, 125*l.*; for dental students, 55*l.*; dental practice, 3 guineas.

University College Hospital, Gower Street, W.C.—Fee, 125 guineas.

Westminster Hospital.—215 beds. Fee, 92*l.* 10*s.*; for dental students, 45*l.*

London School of Medicine for Women, Henrietta Street, Brunswick Square.—Established to provide complete medical education for women. Its classes are recognised by the University of London and the King and Queen's College of Physicians of Ireland. Fee for lectures, 80*l.*; for hospital practice, 20*l.* the first year, 15*l.* each succeeding year.

Queen's College, Birmingham. Faculty of Medicine.—Composition fee, 100 guineas. Students are admitted to two hospitals with 400 beds. There is a dental school here.

Bristol Medical School: Affiliated to University College, Bristol.—Composition fee, 60 guineas for the college, and 35 guineas for the Infirmary, or 2 *l.* for the General Hospital course. The Bristol Royal Infirmary contains 264, and the General Hospital 154, beds.

Leeds School of Medicine—Composition fee, for lectures, 50 guineas; for medical and surgical practice at the Leeds General Infirmary (300 beds) each for three years, 20 guineas; perpetual, 25 guineas; total fees, 96*l.* 12*s.*

Liverpool Royal Infirmary School of Medicine.—300 beds. The perpetual hospital fee is 32 guineas; the composition fee for lectures is 50 guineas.

Owens College, Manchester.—College composition fee, 60 guineas; hospital fee (Manchester Royal Infirmary), 40 guineas; 500 beds.

Sheffield School of Medicine.—Perpetual fee for lectures, 42*l.* Hospital practice may be attended either at the General Infirmary (180 beds), or the Public Hospital and Dispensary (110 beds). Perpetual fee in each case, 35 guineas.

Dr. Steeven's Hospital and Medical College, Dublin.—The hospital contains 250 beds. Composition fee for the medical school, 56*l.* 3*s.* 6*d.*; fee for hospital, 12 guineas for nine months.

Catholic University of Ireland. School of Medicine, Cecilia Street, Dame Street, Dublin.—Perpetual fee for lectures, 56*l.* 17*s.* 6*d.*

Carmichael College of Medicine and Surgery, Aungier Street, Dublin.—This is connected with the following hospitals:—The Adelaide, City of Dublin, Cork Street (Fever), House of Industry, Meath, and Mercer's. Fee for the full course of lectures for the Royal College of Surgeons, Ireland, 58*l.* 5*s.* 6*d.*

New Carmichael College of Medicine and Surgery, Aungier Street, Dublin.—For particulars apply to the Registrar, Dr. Harvey, 7 Upper Merrion Street, Dublin.

Queen's College, Belfast. Faculty of Medicine.—Fees according to the classes attended—generally 2*l.* a class. Hospital practice must be obtained outside the college. Two scholarships of 24*l.* are awarded to first year's medical students.

Queen's College, Galway Faculty of Medicine.—Minimum fee for the degree of M.D., 39*l.* 5*s.* Hospital practice must be obtained elsewhere.

Anderson's College, Glasgow.—Fees for all lectures and hospital practice (at the Glasgow Royal Infirmary, 570 beds), 48*l.*

School of Medicine, Edinburgh.—Fee for study required for a double qualification, 95*l.*, including fee for examination.

Dr. Kirk Duncanson, of Edinburgh, delivers courses of lectures on ear diseases, and gives clinical instruction at the Ear Dispensary, 6 Cambridge Street, Lothian Road. Five hundred patients were treated during the past year.

MEDICAL PRACTICE.

SEVERAL distinct spheres of work are open to the young medical practitioner.

Deaths, removals, and the increase of population provide even now many openings for general practice, and the majority of newly-qualified men seek this field of work. An assistantship or junior partnership with an established general practitioner is one of the best preparations for this work.

Frequently the appointment of parish doctor is sought by the general practitioner. Candidates for this post must have a double qualification, that is, a diploma in both medicine and surgery. The work is laborious, but the pay, though small, is very regular.

The larger lines of passenger and mail steamers usually carry surgeons. The salary is usually 10*l.* a month on the better lines, and varies from this to 5*l.*, or to merely a "full passage" on the smaller ones. The better appointments are much sought after, and the companies generally have a list of several practitioners waiting for each vacancy.

The Army, Navy, and Indian Medical Services offer good openings to the medical student. Appointments are only granted to candidates who pass an examination in various special subjects. Pay at a reduced rate commences immediately, and the candidate is required to go through a special course of study at Netley. After passing an examination on the subjects of this special course, the candidate becomes eligible for an appointment. The pay is monthly in arrear, and increases by small instalments with the years of service. On compulsory or voluntary retirement the practitioner receives either a gratuity or a pension, the amount of which is decided by the number of years of active service. Fuller details of the regulations of these services are given below.

The post of Medical Officer of Health is one of increasing importance—pecuniarily, socially, and scientifically. It is also becoming more and more separated from the ordinary course of practice, so that the student or candidate must devote his life to this particular branch. The special subjects of study have been erected into a department of knowledge under the title of Public Health or State Medicine. Neither the diplomas in the subject nor the appointments are commonly granted to any but qualified medical practitioners, so that we need not enter in any detail into the details of the course of study or of the regulations. The subjects of the examinations for the diploma of State medicine include chemistry, geology, physics, and microscopy, as applied to sanitary questions; medicine in all its aspects which relate to masses of population, and law as applied to sanitary questions. Practical knowledge of these subjects and of chemical analysis is required of the candidates. A summary of the regulations will be found further on.

A certain number of surgeons are employed by the emigration agencies. They have a cabin in the emigrant ships on their outward voyage, and are paid a small fixed amount and a capitation grant on every adult emigrant delivered alive at the port of debarkation. They often receive the cost of the passage home. They choose their own route, but are expected when they reach England to take their turn in accompanying other ships. As many as 300 or 400 souls are often under their charge during the voyage.

Dr. E. Diver's little book, "The Young Doctor's Future; or, What Shall Be My Practice?" gives fuller information on many of these points.

ARMY MEDICAL SERVICE.

AT least half the vacancies are filled by public examination the remainder by nomination by the governing bodies of public schools of medicine. Candidates must be doubly qualified, and must produce certificates of age, character, and of registration of diplomas. He must be 21 years of age and not over 28, except for service on the West Coast of Africa. He must be of unmixed European blood, and free from all hereditary tendency to mental or constitutional disease. He will be examined physically by a board of medical officers. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—(*a*) Anatomy and physiology, 1,000 marks; (*b*) surgery, 1,000 marks; (*c*) medicine, including therapeutics, the diseases of women and children, 1,000 marks; (*d*) chemistry and pharmacy, and a practical knowledge of drugs, 100 marks. The examination in medicine and surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside. The eligibility of each candidate for the Army Medical Service will be determined by the result of examination in these subjects only. Examinations will also be held in the following voluntary subjects, for which the maximum number of marks will be—French and German (150 each), 300 marks; natural sciences, 300 marks. The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German. The natural

sciences will include comparative anatomy, zoology, natural philosophy, physical geography, and botany, with special reference to materia medica. The number of marks gained in both the voluntary subjects will be added to the total number of marks obtained by those who shall have been found qualified for admission, and whose position on the list of successful competitors will thus be improved in proportion to their knowledge of modern languages and natural sciences. After passing this examination every qualified candidate will be required to attend one course of practical instruction at the Army Medical School as a probationer on —1, Hygiene; 2, clinical and military medicine; 3, clinical and military surgery; 4, pathology of diseases and injuries incident to military service.

On passing the examination the candidate becomes a *surgeon on probation*, and is sent to some large station for instruction in ambulance and hospital corps duties until the commencement of the next course of study at the Army Medical School. Pay commences at 8*s.* a day during probation, and rises to 200*l.* a year on appointment, and to 15*s.* a day after ten years' service. After twelve years' full-pay service the rank of surgeon-major may be obtained; the pay varies from 20*s.* to 27*s.* 6*d.* a day, according to length of service. The service on the West Coast of Africa is supplied by volunteers, and is specially paid.

The Indian Medical Service

Is under similar regulations, except that Hindustani (150 marks) is added to the subjects of the voluntary examination. Pay commences on leaving Netley at 10*s.* a day. Either passage out to India or the passage-money is provided. The pay in India begins at 286 rupees a month, and increases to 410 rupees after ten years' service. There is an examination for promotion to the rank of surgeon-major, which may be obtained after twelve years' service. After each five years' service one year's furlough on half-pay can be obtained. After 17 years' service, including the time at Netley, the retiring is 220*l.* a year; after thirty years' service, 550*l.*

The Naval Medical Service

Is under regulations almost identical with those of the Army Service. Pay commences at 11*s.* 6*d.* a day, and rises to 15*s.* 6*d.* after eight years' service. Promotion to the rank of staff surgeon at 21*s.* a day is possible after eight years' service, an examination being passed, and to fleet surgeon, after distinguished special or twenty years' ordinary service, pay commencing at 27*s.* a day.

THE DENTAL PROFESSION.

The Dentists Act, 1878, provides that only persons who are registered under the Act shall be allowed to call themselves dentists, or in any way to lead the public to suppose that they are dentists, or to recover fees for dental operations in the legal courts, under a penalty of 20*l.*

It should be noted that the practice of dental operations is not forbidden. The notice "Teeth Extracted" will not incur a penalty so long as no title is assumed which would lead the public to suppose that the person is registered. But if credit is given for such operations, the debtor might repudiate the debt, and the creditor would have no remedy against him.

The only persons now eligible for registration under the Dentists Act are "licentiates in dental surgery or dentistry of any of the medical authorities" who have been specially empowered by the Act to institute examinations in this subject. The only limitation imposed by the Act on the granting of these licences is that the candidates shall be 21 years of age. The fee for registration, in addition to all other charges, is 5*l.*

The Royal College of Surgeons of England had established examinations in this subject long before the passing of the Dentists Act, and its diploma of L.D.S., or Licentiate in Dental Surgery, is deservedly esteemed. The regulations under which this is granted are as follows:—The candidate must pass a preliminary examination recognised by the College. He must be 21 years of age, and must have been engaged during four years in acquiring professional knowledge, and during not less than three years in acquiring a practical familiarity with the details of mechanical dentistry under the instruction of a competent practitioner. There is no regulation forbidding him to carry on these courses of study at the same time. He must also attend one course of lectures by recognised teachers in each of the following subjects:—Physiology, surgery, medicine, materia medica, chemistry, chemical manipulation, and metallurgy; and two courses in anatomy, dental anatomy and physiology (human and comparative), dental surgery, and dental mechanics. He must, at a recognised school, perform dissections during not less than nine months, attend the practice of surgery and clinical lectures on surgery during two winter sessions, and the practice of dental surgery during two years.

The examination is partly written, partly oral, and partly practical. Besides the purely technical matters relating to dentistry, it includes general medicine, anatomy, and physiology, and some branches of pathology and surgery. The fee for the diploma is 10*l.* 10*s.*

The Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the Royal College of Surgeons in Ireland, grant Dental Diplomas. The examination and regulations are modelled on the plan of those of the Royal College of Surgeons of London.

Most of the large medical schools now provide the full course of study required by these regulations, the fee for the curriculum being generally not more than 30 guineas. There are, however, some special dental schools, which are mentioned below. The lectures on General Medicine, and so on, must be attended elsewhere.

Dental Hospital of London and School of Medicine, Leicester Square.—Total fee, 30 guineas. Dresserships and other appointments open free to all pupils who have entered for the entire course. Only specially dental matters are taught here. The student must obtain elsewhere the necessary instruction in general surgery, &c.

National Dental Hospital and College, 149 Great Portland Street, W.—Total fee, 25*l.* 4*s.* Dresserships open. Registered practitioners may attend short terms of hospital practice and single courses of lectures on paying the fees for them, instead of being required to enter for the full two years.

Edinburgh Dental Hospital and School.—The hospital is in 30 Chamber Street. Fees, for two years' hospital practice, 15*l.* 15*s.*; lectures, 4*l.* 4*s.* a course.

Dental Hospital of Glasgow, Anderson's College.—Fee for two years' practice, 10*l.* 10*s.*; lectures, 2*l.* 2*s.* a course.

Dental Dispensary, Octagon, Plymouth.—Fee for the entire dental curriculum required by the Royal College of Surgeons, 23*l.* 2*s.*

There are other dental hospitals scattered throughout the country, but at these no lectures are delivered.

STATE MEDICINE OR PUBLIC HEALTH.

Certificates or Degrees.

Examining Body and Degrees	Age	Preliminary Requirements	Number of Examinations	Fees	Remarks
				£ s.	
University of Cambridge, certificate ..	24	Licence to practice	2	8 8	—
University of London, certificate	22	M.B. 1 year	1	5 0	Subjects: — Chemistry and microscopy, meteorology, geology, physics and sanitary apparatus, vital statistics, hygiene, sanitary law
University of Durham, certificate	—	Licence to practice	1	5 5	One course of lectures on the subject at the University is compulsory
University of Edinburgh, B.Sc. in Public Health ..	—	Degree in medicine	2	10 10	Two courses at the University compulsory
D.Sc. ditto ..	—	B.Sc. P.H.	Thesis	5 5	One year of practical sanitation as B.Sc. P.H.
University of Glasgow....	—	Licence to practise	2	8 8	One *annus medicus* must be passed in Glasgow
Royal College Physicians, Edinburgh, certificate ..	—	Qualification in medicine	2	10 10	—
University of Dublin	—	M.D.	1	—	

VETERINARY EDUCATION.

By the Veterinary Surgeons Act, passed on August 27, the profession receives safeguards similar to those which protect the practice of pharmacy, of medicine, and of dentistry.

All practitioners of veterinary surgery, or of any branch thereof, must hereafter be registered on the Register of Veterinary surgeons. The register of members of the Royal College of Veterinary Surgeons is constituted the official register. Two classes of practitioners are recognised by this Act—(1) members of the College, which is made to include all persons who hold a recognised veterinary diploma, and (2) "existing practitioners," who must have practised veterinary surgery for not less than five years before the passing of the Act, and must apply for registration within one year. After the last day of December, 1883, it will be illegal for unregistered persons to assume the title of veterinary surgeon, or of any other title stating that he is a practitioner of veterinary surgery.

The Royal College of Veterinary Surgeons grants the titles of member and fellows. Candidates for membership must have gone through a three years' course at one of the veterinary colleges mentioned below, and pass three examinations (fee in each case three guineas). If the candidate is successful, he is registered as member—M.R.C.V.S., registration fee one guinea.

The candidate for fellowship must produce a certificate signed by three fellows as to his status in the profession, and of his having been in practice not less than five years; he must undergo an oral and written examination: fee on election, 15 guineas.

The following are the veterinary schools:—

Royal Veterinary College, *Camden Town, London.*
Royal (Dick's) Veterinary College, *Clyde Street, Edinburgh.* (Fees, 32*l.* 15*s.* 6*d.*, in instalments.)
New Veterinary College, *Gayfield, Edinburgh.* (Fees, £6 guineas, in advance.)
Veterinary College, *Buccleugh Street, Glasgow.*

SCIENTIFIC EDUCATION.

Science and Art Department.

One of the most popular and easily accessible means of obtaining instruction in science is provided by the classes and examinations promoted and conducted by the Science and Art Department, South Kensington. A "Science Directory," containing very full details and syllabuses of the courses of study enjoined upon candidates, is published about October, price 6*d.*, and can be obtained from the Secretary of the Department. Letters addressed to him need not be stamped.

Classes established under the Department are open at low fees to students whose father's income does not exceed 200*l.* a year, the teacher being remunerated chiefly by grants of 1*l.* and 2*l.* on each candidate who passes the examinations in the second and first classes respectively.

The subjects in which examinations are conducted include almost every branch of pure and applied science. The examination in each subject is divided into three stages—elementary, advanced, and honours, the latter requiring really high attainments. All persons who have passed in the advanced stage examination in any subject are qualified to become certificated teachers under the Department, and to receive grants on the results of the examination.

The "Science Directory" gives the addresses of all the science schools connected with the Department, and pharmaceutical students will find them very convenient helps to study, while the examinations will afford good practice in the art of passing.

The following notes on the means of obtaining scientific education are necessarily very fragmentary, but it is hoped that the information may be useful as a guide to inquiry. The classes and regulations of the City and Guilds of London Institute and of the Institute of Chemistry will be found under separate headings.

University College, London,

Provides special curricula of study in several branches of technological science. Full details are given in the prospectus of the faculties of arts and laws and of science. Dr. Charles Graham, D.Sc., is the professor of chemical technology.

For (1) metallurgists and (3) manufacturers of glass, cement, artificial stone, &c., the curriculum extends over three years, distributed as follows:—

First Year.—Junior mathematics, experimental physics and mechanics, theoretical chemistry (perpetual ticket), mechanical drawing, mechanical engineering, chemical laboratory, daily (summer term).

Second Year.—Theoretical chemistry, repeated; mechanical engineering, chemical laboratory (daily), lectures on chemical technology (economic geology).

Third Year.—Lectures on chemical technology, laboratory of chemical technology (daily), with special instruction in the materials and products of their respective occupations.

The same course of study, with the omission of geology, is recommended for (2) alkali, soap, and manure manufacturers; (4) bleachers, dyers, and calico printers; and (5) brewers, distillers, vinegar manufacturers, sugar refiners, glucose and dextrine manufacturers, &c. For (6) agriculturists the mechanical engineering of the first year is replaced by courses of botany, land surveying, levelling, and mapping. In the second year economic geology takes the place of botany.

The following is the curriculum recommended for

(7.)—Consulting Chemists and Public Analysts.

First Year.—Junior mathematics, experimental physics and mechanics, theoretical chemistry (perpetual ticket), chemical laboratory (daily during summer term).

Second Year.—Theoretical chemistry repeated; physical laboratory (daily during first term), experimental physics and mechanics, chemical laboratory (daily during second and third terms), lectures on mineralogy and geology.

Third Year.—Theoretical chemistry, repeated; chemical laboratory (daily throughout the session), lectures on botany (summer term).

Fourth Year.—Lectures on chemical technology, laboratory of chemical technology (daily throughout the session), with special instruction in the commercial analysis and valuation of raw materials; lectures on physiology.

Fifth Year.—Lectures on chemical technology, lectures on materia medica and therapeutics, laboratory of chemical technology (daily throughout the session), with special instruction in making investigations on manufacturing processes and in drawing up professional reports.

The foregoing courses of study are only suggested for the guidance of those desiring information on technical education, and are therefore subject to modification, both in respect to the subjects studied and the time spent at college, as may be found advisable in each case after consultation with the professor. Thus, students entering the college with more advanced scientific knowledge, will be able to shorten any of the courses described to two years or even one year.

During 1881–82 four courses of lectures open to the public will be delivered on chemical technology. A, on heating and lighting; B, on the chemistry of brewing; C, on metallurgy; and D, on the chemistry of bread-making. Fee for courses A, B, and C, two guineas; for course D, one guinea; for four courses, five guineas.

University College of Wales.

Fees for a session (three terms), including board and lodging, 45*l.* Single classes may be attended, fee 1*l.* a term for each class. The style of "Associate" is conferred upon passing three examinations. The curriculum is mainly literary, but the Associateship can be gained by science students, with but little extra attention to literature. The time required is not more than two terms. The science courses are all conducted by Professor T. S. Humpidge. The list includes chemistry (organic and inorganic), physics, mineralogy, zoology, physiology, botany, geology, and, physical geography.

Royal School of Mines.

The title of Associate is granted in certain divisions and lines of study. The compulsory course covers three years in most cases, but geology and agriculture take up one term more. The course for the first two years is the same for all divisions, and includes chemistry, mechanics, mathematics practical geometry, mechanical drawing, physics, astronomy, and geology with mineralogy. The course of study during the third year is specialised according to the requirements of the student. The divisions are mechanics, physics, chemistry, biology, geology, agriculture, metallurgy, and mining. The fees for the first two years amount to 75*l.*, and for the remainder of the course of the Associateship they vary from 30*l.* to 40*l.*

A number of Exhibitions are granted, full particulars being given in the prospectus, which can be obtained from the Secretary of the Science and Art Department, South Kensington.

Liverpool Science and Art Classes,

9 Hackins Hey.

Principal, A. Norman Tate. Classes are conducted in chemistry (organic, inorganic, and practical; mathematics; magnetism and electricity; acoustics, light, and heat; physiography; physiology; botany; and other subjects. Fees.—For laboratory practice, one guinea; for other classes, 5*s.*, for Government-class pupils; for others, three guineas for laboratory practice and half-a-guinea for classes.

Liverpool College of Chemistry,

Duke Street.

Lecturers: Dr. George Tate, F.C.S., and Granville H. Sharpe. Experimental Chemistry.—A course of 100 lectures. Fee for the whole course, 4*l.* 4*s.* Evening courses are also held on inorganic and organic chemistry, and on physics. The laboratories are open daily. Pharmaceutical and medical students are received one hour daily; fee for course of three months, 3*l.* 3*s.*

Salford Working-men's College,

Great George Street.

Classes are conducted in inorganic, organic, and practical chemistry, by Mr. G. H. Hurst. Fees, 2*s.* 6*d.* a term, or 4*s.* 6*d.* for practical chemistry.

Yorkshire College, Leeds.

This college has three remarkable special departments supported largely or chiefly by the London Companies. These are the departments of coal-mining, textile industries, and dyeing. Special prospectuses can be obtained. Day classes are held in all the ordinary branches of science and literature. In the evenings classes are held in mathematics, physics, chemistry, zoology, botany, civil and mechanical engineering, and various literary subjects. Fees, about half-a-guinea a course. The instruction in science is thoroughly practical. Under certain conditions the title of Associate is granted.

Birkbeck Literary and Scientific Institution,

Southampton Buildings, Chancery Lane.

Classes in chemistry (inorganic and organic) will be conducted by Mr. George Chaloner and Mr. H. Chapman Jones. Other subjects are taught, and a full syllabus can be obtained of the secretary, post free 5*d*. There are elementary and advanced classes in both branches of chemistry. Fees, for members of the Institution, 3*s*.; for others, 6*s*. A class on practical chemistry meets on Saturday evenings; fee, 15*s*.

CITY AND GUILDS OF LONDON INSTITUTE FOR THE ADVANCEMENT OF TECHNICAL EDUCATION.

The President of the Institute is H. R.H. the Prince of Wales; the Lord Chancellor is one of the Vice-Presidents; F. J. Bramwell, F.R.S., member of the Institute of Civil Engineers, is Chairman of the Executive Committee, of which the Lord Mayor, and the Presidents of the Royal and Chemical Societies, of the Institution of Civil Engineers, and the Chairman of the Council of the Society of Arts, are *ex-officio* members. The rest of the committee is made up of representatives of the various Livery Companies. George Matthey, F.R.S., is one of the representatives of the Goldsmiths' Company. The Director and Secretary is Philip Magnus, Esq., B.Sc., B.A.; and the Central Office of the Institute is at Gresham College, London, E.C.

The Institute is building a "Technical College" in Finsbury, in the meanwhile instruction is given at the Cowper Street Schools, Finsbury. Professor Armstrong, Ph.D., F.R.S., teaches chemistry, and Professor Ayrton, A.M. Inst. C.E, teaches physics, as applied to arts and manufactures.

The instruction consists chiefly of laboratory work, and is adapted to the requirements of apprentices, artisans, foremen, managers of works, and others.

The principal subjects in which instruction has as yet been given are:—Chemistry of coal-tar products, brewing, spirit-distilling and allied industries, photography, fuel, electro-metallurgy, steam, motor machinery, weighing appliances, electrical instrument making, electric lighting. A technical art school is held at 122-24 Kennington Park Road, and a school of art—wood-carving—held at South Kensington.

The classes of the "Artisans' Institute," hitherto held in Castle Street, Leicester Square, are about to be removed to the new Technical College, Finsbury. Instruction will be given in zinc and tinplate work, plumbers' work, carpentry, masons' work, bricklaying, building construction, modelling, &c.

Fee for the session of eight months, 6*s*. Apprentices are registered as such for a fee of 2*s*., and are then admitted free to the classes connected with their special trade.

The "Horological Institute" provides day and night classes in the theory and practice of the different branches of watch and clock making.

Free tickets of admission for artisans are given by the Committee to the classes on chemical technology, under Professor Graham, and to the workshops in connection with the mechanical engineering classes, under Professor Kennedy, at University College; and to the class and laboratory instruction in metallurgy, under Professor Huntington, and to the courses of practical fine art, under Professor Delamotte, at King's College.

Examinations are held annually throughout the country in various branches of technology, such as alkali manufacture, cotton, cloth, paper, telegraphy, watch-making, photography, carriage-building, gas, glass, mechanical engineering, oils, printing, tools.

The Central Institution, which is to be erected in the Exhibition Road, South Kensington, is intended for the training of technical teachers and the instruction of foremen, managers of works, manufacturers and others, in the application of special branches of science and art to industrial operations.

Such is a brief survey of the work of the Institute. The following paragraphs give rather full details of the science classes provided. The prospectus, which can be obtained from the central office, gives syllabuses of the different courses in electricity:—

Technical Chemistry.

Henry E. Armstrong, Ph.D., F.R.S., Professor.

The chemical laboratory will be open daily (Saturdays excepted) from 9 A.M. to 5 P.M., and on Monday and Friday evenings from 6.30 to 9 P.M., for students desiring individual instruction. Fee (inclusive of apparatus and materials) for day students attending six hours a week, 5*s*. for the term, or 12*s*. 6*d*. for the session; twelve hours a week, 7*s*. 6*d*. for the term, or 1*l*. for the session. Fee for students attending one evening a week, for the term, 3*s*. 6*d*., for the session, 9*s*.; two evenings a week, for the term, 5*s*., or for the session, 12*s*. 6*d*.

Dr. Armstrong will deliver a course of lectures introductory to the study of various branches of applied chemistry on Wednesdays and Fridays, commencing October 5, at 1.45 to 2.45 P.M. A laboratory class specially suited to students attending this course will be held on Tuesdays, at 10 A.M. to 1 P.M., commencing October 4. In connection with this course, Mr. Evans will discuss exercises, &c., and give a series of lecture demonstrations, at a time which will be arranged to suit the convenience of the class. Fee for the laboratory and lecture course, 7*s*. 6*d*. for the term, or 1*l*. for the session.

A course of laboratory demonstrations in organic chemistry will be given by Dr. Armstrong on Monday evenings, at 6.30 to 9 o'clock, commencing October 3.

This course is principally intended for distillers (including coal-tar distillers and spirit rectifiers), and will be suited for candidates in subject 4 at the technological examinations, but it is hoped that students who have attended a previous course on the chemistry of brewing may be able to continue their attendance, and that new students of this branch of organic chemistry may also present themselves. Students desiring to obtain a knowledge of the chemistry of bread-making should attend on this evening.

On the same evening, at 6.30 to 9 P.M., Mr. Evans, chief assistant in the chemical laboratory, will give a course of laboratory and lecture demonstrations on the properties of the more important metals and metallic compounds with reference to their practical applications and their analytical determination and estimation. Copper, iron, lead, silver, tin, and zinc will be the metals principally treated of, and the wants of plumbers and metal-workers generally will be as far as possible considered.

Dr. Armstrong will commence on Friday, October 7, a course of lecture and laboratory demonstrations on fuel, including solid, liquid, and gaseous fuels and their applications as heating and illuminating agents. Laboratory class, 6.30 to 8.30; lecture, 8.30 P.M.

Candidates in the subject fuel at the technological examinations may with advantage attend this course.

In this course, the principles on which combustion depends will be fully explained and illustrated; also the methods of determining the heating power of fuels. The properties of the several fuels, their composition and their heating powers will be demonstrated; and the relative advantages of various fuels and the different modes of applying heat will be discussed. Subsequently, the determination of temperature, the temperatures required for and obtained in various technical operations, and the circumstances affecting the combustion of fuels will be considered. Illuminating agents will form the subject of the latter part of the course, but it is important that students who may desire to specially devote their attention to this subject should attend the earlier part of the course.

In the laboratory course, the students will have the opportunity of experimentally studying the laws of combustion, the properties of fuels and the method of determining their composition and heating power, and of instituting various experiments with fuels. Later on they will take up the subject of illuminating agents.

Fee for each of these courses, for the term, 5*s*, or 12*s*. 6*d*. for the session.

Technical Physics.

W. E. Ayrton, F.R.S., Professor.

The physical laboratory will be open daily (Saturdays excepted) from 10 to 5 P.M., and on Monday and Wednesday evenings from 6.30 to 9.30 P.M. for students desiring individual practical instruction in technical physics. Fee (inclusive of apparatus and materials *) for day students attending six hours a week, 5*s*. for the term, or 12*s*. 6*d*. for the session; 12 hours a week, 7*s*. 6*d*. for the term, or 1*l*. for the session. Fee for students attend-

* Students will be expected to make good breakages and injuries to apparatus not caused by fair wear and tear.

ing one evening a week, 3*s.* 6*d.* for the term, 9*s.* for the session; two evenings, 5*s.* or 12*s.* 6*d.*

There will also be the following classes and lectures:—

EVENING CLASSES AND LECTURES.

Professor Ayrton will continue on Monday evenings, from 8.30 to 9.30 P.M., commencing October 3, the course on electrical instrument making, and give practical instruction in the scientific principles underlying the manufacture and testing of condensers, induction coils, and telephones. The students will have the opportunity of performing themselves the experiments suggested at the lectures, as well as of obtaining information from the Professor regarding technical difficulties, by attending a special laboratory course, to be held on Monday evenings, from 6.30 to 8.30 commencing October 3.

Fee for the term, 5*s.*, or 12*s.* 6*d.* for the session. The subjects treated will be "condensers," submarine duplex telegraphy, induction coils, and telephones.

On Wednesday evenings, from 8.30 to 9.30, from October 5, Professor Ayrton will continue the course on the electric light, especial attention being devoted to the construction of the various forms of generators and to the laws governing their action and efficiency. The practical application of the principles of the electric transmission of power to electric railways will be entered into and a critical examination made of the various systems of electric lighting at present employed in London.

A special laboratory class for students attending this course will be held on Wednesday evenings, from 6.30 to 8.30, in which students will be taught to make exact measurements of electric currents, electromotive forces and resistances, and to practically use absolute instruments when very strong electric currents have to be measured. They will then practise making measurements of the illuminating power of electric lights produced by various strengths of electric current, generated by dynamo-electric machines driven by a 6-horse power gas engine in the laboratory fitted with suitable gearing to enable the dynamo machines to be run at any desired speed; and they will compare the relative illuminating powers with the energy absorbed in the arc in each case, so as to determine experimentally the relative efficiencies of different forms of electric lighting. The students will also experiment on the sensibility of the various lamps as regards their automatic adjustment and on the efficiency of dynamo-electric machines relatively to one another, and to batteries for the production of the electric current. Experiments will also be carried out regarding the practical efficiency of electric transmission of power under various conditions.

This course is suited for candidates in Branch B of electrical engineering at the technological examinations. Fee for the term, 5*s.*, or 12*s.* 6*d.* for the session.

On Friday evenings, from 7.0 to 8.30 P.M., commencing October 7, a course of lectures will be given on the classified series of electrical experiments which have been arranged in the laboratory to enable students to verify the fundamental principles and laws in electricity and magnetism. All students who have not already passed through such a course will do well to attend it, as their laboratory work will be thereby much facilitated. Fee for the term, 5*s.*, or 12*s.* 6*d.* for the session.

DAY CLASSES AND LECTURES.

The preliminary course of lectures on electricity and magnetism, fully illustrated with experiments, will be delivered on Tuesday and Thursday afternoon, from 1.45 to 2.45, commencing October 4. This preliminary course, although a continuation of the one commenced at the beginning of this year, will be so arranged that it may be joined by new students desirous of obtaining such preliminary training as should be possessed by students proposing to study any branch of electrical engineering.

A laboratory class adapted to the students attending this course of lectures will be held on Thursdays, at 10 to 1.0 P.M.

Fee for the laboratory and lecture course for the term 7*s.* 6*d.*, or 1*l.* for the session.

Students attending regularly any of the chemical or physical courses during the entire session, and passing a satisfactory examination, will receive a qualifying certificate, entitling them to the full technological certificate of the Institute on passing the technological examinations in allied subjects.

In May, 1882, Technological Examinations will be held in 32 subjects, mentioned below. All the examinations will be held on the same evening, so that no candidate can enter for more than one subject. A full technological certificate is granted only to those who have passed the examinations of the Science and Art Department in at least two of certain subjects mentioned in the Technological syllabus.

SUBJECTS.

1, Alkali manufacture; 2, bread-making; 3, brewing; 4, distilling—A, coal-tar distilling; B, spirit manufacture; 5, sugar manufacture; 6, fuel; 7, manufacture of oils, colours, and varnishes; 8, manufacture of oils, illuminating and lubricating; 9, gas manufacture; 10, iron and steel manufacture; 11, paper manufacture; 12, pottery and porcelain manufacture; 13, glass manufacture; 14, dyeing—A, silk; B, wool; 15, bleaching, dyeing, and printing—A, calico; B, linen; 16, tanning leather; 17, photography; 18, electro metallurgy; 19, manufacture of textile fabrics—A, cloth; B, cotton; C, linen; D, silk; E, jute; 20, lace manufacture; 21, weaving and pattern-designing; 22, electrical engineering—A, telegraphy; B, electric lighting and transmission of power; C, electrical instrument making; 23, metal plate work; 24, plumbers' work; 25, silversmiths' work; 26, watch and clock making; 27, tools—A, wood-working; B, metal-working; 28, mechanical engineering; 29, carriage building; 30, printing; 31, mechanical preparation of ores; 32, mine surveying.

INSTITUTE OF CHEMISTRY.

THE Institute of Chemistry of Great Britain and Ireland was founded in 1877 as a limited company, but by a special license granted by the Board of Trade it is empowered to omit the word "limited" from its title, on condition that there should be no division of profits among its members.

The objects of the Institute are the promotion of the "thorough" study of applied chemistry, and "the advancement of the profession of chemistry."

There are two grades of members, fellows (F.I C.), and associates (A.I.C.). During the first six months of its existence these members were admitted without examination, and by far the larger number of those at present on the list obtained the title on these terms.

Candidates for admission to the fellowship must be associates of three years' standing, who are 24 years of age, and who have been engaged for three years in the continuous study and practice of applied chemistry. The annual subscription for fellows is two guineas, for associates one guinea. Fellows pay an admission fee of five guineas on election. Subjoined are the,

Qualifications required of candidates for admission as associates.

Every candidate for the associateship will be required to produce evidence of qualifications as set down in No. 61 of the Articles of Association, as follows:—1. That he is not less than 21 years of age. 2. That he has passed through a course of three years' study of theoretical and analytical chemistry, physics, and elementary mathematics satisfactorily to the Council. 3. That he has passed an examination approved by the Council in chemistry, physics, and elementary mathematics, conducted by a recognised university, college, school, or society, or has passed such other examination as shall have been prescribed by the Council.

Evidence of Qualifications in Theoretical Chemistry and Physics.

If a candidate has passed any of the following examinations, it will be considered as sufficient evidence of training in general and theoretical chemistry, physics, and elementary mathematics, and he will not be required to pass any further examination in these subjects.

The final honours examination for the degree of B.A. at the University of Oxford in the first class, in the subject of chemistry, in the School of Natural Science.

The final or degree examination for B.Sc. in the Universities of Edinburgh, Durham, or London, in the subjects of chemistry and physics.

The senior moderatorship in experimental science in the University of Dublin.

The associateship of the Royal School of Mines, and some of the examinations of the Science and Art Department.

Until October, 1883, Council may also accept, when they deem them sufficient, the examinations in theoretical and general chemistry, physics, and elementary mathematics of any school, college, or university. When, however, a candidate for the associateship cannot adduce evidence of general training in theoretical and general chemistry, physics, and mathematics, satisfactory to the Council, he shall be required to pass an examination, such examination to be by printed or written questions, to which the candidate shall return written answers, without access to books, MSS., or memoranda.

After October, 1883, the three years' course of study must be taken at some school or college approved by the Council.

PRACTICAL EXAMINATION.—Every candidate for the associateship will be required to pass a practical examination in analytical chemistry as follows:—1. Qualitative analysis, in which the candidate's knowledge of the use of the microscope and spectroscope will be tested, one day. 2. Quantitative mineral analysis, including volumetric methods, two days. 3. Quantitative organic analysis and gas analysis, two consecutive days. This examination will be held in some adequately-appointed laboratory, under the personal supervision of an examiner appointed by the Council.

It should be noted that the fellows and associates have no official standing, and the qualification is purely honorary. The list of fellows and associates is published each year, as an advertisement, in the *Times*, *Nature*, and, perhaps, other journals, and this is the most tangible benefit which members receive.

PROTECTED PHARMACISTS.—The *Union Pharmaceutique* reports that some of the inspectors of pharmacies appointed by the Government have claimed and exercised the right of testing the wines of the pharmacien's private cellar, and have condemned some samples found to contain salicylic acid. The journal is confident that in this the inspectors have exceeded their powers.

Exchange Column.

ADVERTISERS IN THE EXCHANGE COLUMN will find it very much to their advantage to draw up their announcements so that they will fall naturally into one of the divisions into which the advertisements are grouped.

We would also suggest that those who avail themselves of the Disposal section will be wise to define, with some approach to detail, what they have to sell. Probable purchasers are too busy, in most cases, to enter into preliminary correspondence, which is likely enough to have no ultimate result.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of THE CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of THE CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The Publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

Deposit of Money.—In order to ensure safety we offer the following system:—The purchaser of anything advertised in the Exchange Column may remit the amount to us. We shall acknowledge receipt to both parties by post-cards, and shall only pay it away on the advice of the remitter. Whether returned to him or paid to the seller, we shall charge a commission of 2½ per cent. on any money thus passing through our hands, and not less than 6*d.* on any single transaction.

FOR DISPOSAL.

Dental and Surgical.

Cheap.—Iron vulcaniser for 3 flasks, safety valve, thermometer burner; complete and perfect. Cor. Willson, Grimsby.

Student's dissecting-case, complete, quite new, 12*s.* 6*d.* (cost 20*s.*). "D.," 10 Upper Charles Street, Goswell Road, E.C.

Pair leg irons for inward curvature; suit child about 3 years old; good condition; cost 6*l.*; cash 36*s.*, or exchange. Insull, Chemist, Hanley.

Air and water beds and cushions, nearly new, for sale or hire; elastic stocking, knee-caps, pessary mould, all in good condition and cheap. "D.," 10 Upper Charles Street, Goswell Road.

Dental goods, 25 to 60 per cent. off list prices.—Lathe, page 52 Ash's list, cost 8*6s.*, 40*s.*; Whitney vulcaniser, cost 70*s.*, 55*s.*; both equal to new. Six "Lund's" gum lancets, 2*s.* 6*d.*; a lot of scalers, burnishers, &c., 6*d.* each, stoppers 7*d.*, never been used. 20,000 diatine teeth 8*s.* 100, 60*s.* 1,000; a few hundred pin teeth 25*s.* 100. Bolton & Co., 251 Grays Inn Road, London.

Drugs and Chemicals.

8 oz. of pure quinine, 8*s.* 6*d.* per oz., or will divide. 65/22.

2 oz. neroli, 3½ otto, 4 Mitcham lavender, 4 ess. ambergris, all finest quality; 20 off list price, or offers. Greig, 591 Old Kent Road, S.E.

Best quality ol. anisi, E.I., 9*s.* lb.; ol. caryoph. ang., 7*s.* 6*d.* lb.; finest carmine, 3*s.* oz.; Megeson's ginger lozenges, 1*s.* 6*d.* lb.; gum sorts, good, 8*d.*; samples and further list, also 80 materia medica specimens. De Carle, Chemist, Norwich.

Proprietary Articles.

Nine dozen Allcock's porous stamped, 58*s.*, fresh; 1 doz. Allcock's corn, 8*s.* 6*d.* 66/5.

Surplus stock.—Send for list of clean saleable patents to John Sneed, Chemist, Keighley.

Four dozen Beecham's pills, small, 5*s.* 9*d.* doz.; 5 doz. 1*s.* 1½*d.* size, 8*s.* 6*d.* dozen; 2 boxes Allcock's porous, 6*s.* 8*d.* doz. 66/4.

Six bottles Hotchkiss' mint, H.G., 1lb. 12*s.*; a few 2*s.* 9*d.* patents, clean, 1*s.* 9*d.* each, send for list; half-dozen Mother Siegel, 1*s.* 6*d.*; half-dozen Rooke's elixir, 3*s.* 63/19.

5 lbs. ribbon isinglass, 2*s.* 6*d.* per lb.; three Rowland's kalydor, 4*s.* 6*d.*, clean; and other patents; cash or exchange. Boor, Chemist, Wisbech.

Sixteen boxes Bass's gout pills, 7½*d.* size; 20 ditto, 2*s.* 9*d.* size; 43 Bostock's eye ointment, 1*s.* 1½*d.* size; 8 Bostock's antiscorbutic ointment, 1*s.* 1½*d.* Offers requested. 65/11.

Seven Hunter's solution of chloral, 1*s.* 1½*d.*; two Stedman Phillip's tonic drop, 1*s.* 1½*d.*; six "True Scot's" pills, 1*s.* 1½*d.*; several dozens Long's maggot wash, two sizes (three dozen 1*s.*, six dozen 6*d.*); "Magic" butter-powder. What offers? Younger, Brampton, Cumberland.

Apparatus.

Two good square petroleum-tanks, well made, quite clean, 200 gallons each, 5*l.* W. Sharpe, Madeley, Salop.

Galvanic battery, carbon and zinc, 20 cells, Maw's, cost 12*l.*, price 3*l.* W. Butcher & Co., Homœopathic Chemists, Blackheath, S.E.

One Pinder's pill machine, good as new, price 7*l.* 10*s.* Apply, James Watson, Rose Corner, Norwich.

10-gallon copper still with pure tin worm, tub, and stand, &c., in good condition; to be sold cheap. 67/34.

Wedgwood mortars and pestles, new, two 9-inch, one 12-inch, one 14-inch, cash 20*s.*, or exchange. A. Chavasse, 23 Stowe Street, Dudley.

Rotary pill machine (Bushby's patent) on sale or exchange, also two Wedgwood mortars and pestles, never been used, one small, the other medium size, the lot 50*s.* cash. J. F. W., 7 Wine Street, Bristol.

Galvanised petroleum or benzoline tank, with man-hole and cover, size 38 inches cube, 200 gallons, best quality, and quite new, price 3*l.* 3*s.* G. C. B., 23 Bunhill Row, London, E.C.

Chemical apparatus, just new.—Burette and stand, graduated pipette, 32-oz. stoppered retort, iron tripod funnels, glass condenser, file, syphon-tube, bottle-brush, box (cost 17*s.* 2*d.*); offer wanted. Brawn, Lichfield Street, Tamworth.

Two 400-gallon wrought-iron close-riveted tested oil-tanks, with manhole and cover, size 48 inches cube, best make and quality, never used, price 6*l.* 6*s.* the two; also two 200-gallon, size 38 inches cube, same make and description as above, price 4*l.* 4*s.* the two. G. C. B., 23 Bunhill Row, London, E.C.

Two 400-gallon wrought-iron close-covered oil-tanks, painted, with man hole 4 feet square, price 3*l.* 2*s.* 6*d.* each; two 200-gallon ditto, as above, 3 feet cube, price 2*l.* 2*s.* each; also two 200-gallon petroleum-tanks, 3-feet cube, close covered, with man-hole, galvanised, price 3*l.* 5*s* each, all new and best make. C. B., care of C. More, 30 Bush Lane, Cannon Street, E.C.

Educational.

What offers, cash or exchange, for good microscope, with extras, in handsome mahogany case, cost 5*l.* 10*s.*? Insull, Chemist, Hanley.

Complete copy of Wills' "Postal System." Apply for particulars. 65/25.

Botany.—Over 100 indigenous plants, including the official, mounted, classed, named, 6*s.*, carriage free. Tully, Tunbridge Wells.

Set of illegible autograph prescriptions (original), 2*s.* 6*d.*; 30 prescriptions (catch and difficult) given to dispense at Minor during past 12 months, 2*s.*; 50 questions asked of my successful students at last Minor, 1*s.* 1*d.*; lot of cheap, almost new, books, stamp for list. Saunders, Medical Tutor, 79 Gaisford Street, N.W.

Don't get Plucked on the Cinchonas.—Carefully-selected typical specimens of calisaya, succirubra, condaminea, lancifolia, succirubra (Indian mossed), condamiuea (Indian mossed), post-free, 1*s.* 8*d.*; 40 typical autograph prescriptions and how to dispense them (wrinkles), 2*s.* 6*d.*; fruits, illustrating septicidal, loculicidal, septifragal, transverse, and porous dehiscences, 1*s.* 2*d.* Mason, 79 Marchmont Street, W.C

Literature.

Turner's "Chemistry" (28*s.*), price 7*s.* 6*d.*; Thomson's "Organic Chemistry" (24*s.*), price 6*s.* Tully, Tunbridge Wells.

Kelly's Post Office Directory of Derbyshire, Leicestershire, Rutlandshire, and Nottinghamshire, in good condition, published price 25*s.*, date 1876; what offers? Sneath, Chemist, Newark.

Seventeen vols. *Pharmaceutical Journal* (1841 to 1851 and 1854 to 1860), well bound; Watson's "Chemistry," 5 vols.; Rose's "Chemistry," 2 vols.; Turner's "Chemistry," 2 vols.; Brande's "Chemistry." What offers, cash or exchange? 64/25.

Post Free for Remittance.—Lindley's "Elements Botany" (14*s.*), 5*s.*; Dunster's "Young Collector's Handy-book Botany," plates, new (2*s.* 6*d.*), 1*s.* 6*d.*; Robertson's "Diseases Generative System" (21*s.*), 6*s.*; Hale's "New Remedies" (American), 6*s.*; Parker's "Modern Treatment of Syphilis" (10*s.* 6*d.*), 5*s.*; Harrison on "Stricture," plates, (7*s.* 6*d.*), 4*s.*; Merriman's "Difficult Parturition," plates (12*s.*), 4*s.*; Nesbit's "Agricultural Chemistry," 2*s.* 6*d.*; J. S. Mill's "Political Economy," scarce, 5*s.*; Berzelius on "Blow-pipe" (12*s.*), 3*s.* 6*d.*; Fresenius' "Qualitative Analysis," 7th edition, by Vacher (12*s.* 6*d.*), 6*s.*; Winslow's "Obscure Diseases of Brain," 3rd edition (10*s.* 6*d.*), 5*s.*; Miller's "Text-book Surgery" (16*s.*), 4*s.*; Liebig's "Letters on Modern Agriculture," new copy (6*s.* 6*d*), 3*s.* 6*d.*; several homœopathic books in German and French; list sent. M. Percy, 11 James Street, Haymarket, London, S.W.

Barton and Castle's "British Medicinal Plants," last edition, coloured plates, new (30*s.*) 15*s.*, 1877; Cooley's "Cyclopædia Practical Receipts," by Tuson, as new (31*s.* 6*d.*), 20*s.*; Lemprière's "Classical Dictionary," 10th edition (12*s.*), 4*s.* 6*d.*; Blackie's "Popular Eneyelopædia," 14 large volumes, many fine plates, nearly new, 50*s.*, only (cost 7*l.*), 1862; Ure's "Dictionary Chemistry" (21*s.*), 4*s*; Miller's "Chemical Physics," 4th edition (10*s.* 6*d.*), 4*s.* 6*d.*, and "Organic Chemistry," 3rd edition (21*s.*), 8*s.* 6*d.*; Carpenter's "Human Physiology," 7th edition (31*s.* 6*d.*), 14*s.*; Hempel's "Materia Medica," very thick volume (25*s.*), 12*s.* 6*d.*; Jahr's "Symptomen Kodex and Repertorium," 4 thick, well-bound volumes, German, 12*s.* 6*d.*; Muspratt's "Chemistry," in parts, wants 14 parts to complete (63*s.*), 15*s.*; Withering's "British Plants," 4 vols., well bound, plates (1*l.* 12*s.*), 8*s.* 6*d.* M. Percy, 11 James Street, Haymarket, London, S.W.

Pharmaceutical Journal, third series, complete almost anything accepted. 63/7.

No reasonable offer refused.—Attfield's "Chemistry," Wills' "Elements Pharmacy," Wills' "Practical Analysis," Bentley's "Botany," Colenso's "Algebra," Todhunter's "Algebra." Latin Grammar, Morell's "Grammar," Cornwall's "Geography," Cassell's "Euclid," Magnus "Mechanics," "History of Rome." "Alpha," 17 High Street, Weston-super-Mare.

Soda-water Plant.

A first-class soda-water machine, for hand or steam, 40*l*. Alpha, 34 High Street, Putney.

Soda-water machine, with gas generator and gasometer complete; Bracher's desideratum mixer, with one spare sieve, 12-inch size. Tyne Vale Chemical Works, Forth Banks, Newcastle-on-Tyne.

Optical.

Laurance's spectacles, invoice price 30*l*.; what offers? Young, Chemist, Ilkley.

Shop Fittings.

What offers for "Chatsworth" fountain, nearly new, suitable for shop, wholesale price 47*s*. Particulars of Hunn, Henley-on-Thames.

Nearly new, five specie jars, two show carboys, window-casings, dispensing-screen. N. Knox, 107 Frederick Street, Cardiff.

Two hundred shop-rounds, assorted shield, labelled; four dozen blue jars, ointment, and extract. Bates, 6 Chrisp Street, Poplar.

Re advertisement in last month's number, scales, &c., still on offer. B., 11 Bridge Street, Goole, Yorks.

Counter glass case, nearly new, 4 ft. 6 in. by 11 in., and a smaller one, cheap; sketch sent. Smith, Chemist, Ludlow.

At a bargain, the entire fittings of a chemist's shop; no reasonable offer refused. For particulars apply to H. Gowen, St. John Street, Hanley.

Cheap.—500 medical drawers in carcases of all lengths, with mahogony fronts and glass knobs; also counter drawers, desks and glass cases, counters, &c. Apply, H. Clark, 8 Mare Street, Hackney.

Six dozen 80-oz. blue syrup-bottles, loose stoppers; what offers for whole or part? bottles labelled various; only few been used. W. Gilbert, Homœopathic Chemist, Bournemouth.

Handsome mahogany wall-case, 8 feet by 5 feet, four drawers through centre, with glass labels and knobs, equal to new. 8 guineas; sketch on application. T. Farthing, Spennymoor.

Two 6-gallon pear-shaped window carboys, cut stoppers, filled beautiful colours, cost 2*l*.; nest of 76 handsome mahogany drawers; also lot of shelving to match, cost 25*l*.; what offers? must be sold. Holdroyd, South Parade, Cleckheaton, Yorks.

Four nests of drawers, one 43 by 33, 34 by 29 well made; also lamp and arm counter, about 5 feet; mahogany wall case, 4 feet by 4 feet 6 inches; specie-jar, &c.; very cheap. Apply to J. H. Read, 2 Market Terrace, Upper Holloway.

8 ft. 6 in. mahogany-top counter, with seven drawers; 4 ft. 6 in. ditto, with mahogany dispensing-screen; 8 ft. 6 in. glass wall-case, with cupboards under; 130 ft. mahogany-fronted shelving; 50 ft. French polished shelving. Hambridge, Chemist, Higbworth.

Outside lamp, octagon (four ruby), mortar and pestle on top, bracket complete, 25*s*.; mahogany-top counter, 7 feet 2 inches, 2-feet wide cupboard, and three oil-cisterns, 18*s*.; two black sample-cases, wood, 19 inches long, 13 inches wide, 12 inches deep, fitted with mahogany edged trays, patent locks, and let-in handles, 10*s*. each; two pocket-bottle sample-cases, 2*s*. each; two window show jars, 22 inches high, 5*s*. each; eight 14-lb. tin store canisters, 1*s*. 3*d*. each; all cheap, alterations. 62 Duke Street, Sheffield.

Over 200 show cases and odd lots of shop-fittings, new and second-hand, must be cleared out immediately, pending alterations, no reasonable offer refused. The lots comprise counter show-cases of all descriptions, desks, dispensing and other counters, counter-drawers, window-fittings, show-stands, shop chairs, wall-case 10 feet long, odd bottles, jars, carboys, &c., which have been taken in exchange; also the complete fittings of a West-end tobacco store, new, in first-class style and workmanship, which are offered at about one-fourth their cost. Send requirements, Geo. Treble & Son, 78 Crondall Street, Hoxton, London, N.

Thirty-six 1-gallon store bottles, 1*s*. 4*d*. each; 8-ft. mahogany wall-case, 160*s*.; 9 ft. painted wall-case, 120*s*.; 12 4-lb. white ointment-jars, 1*s*. each: lot of quart infusion jugs, 1*s*. each; several lots of ointment-jars at about half-price; desk and case, 45*s*.; 6-ft. dispensing screen, marble slab, 100*s*.; 7-ft. screen, mirror centre, 130*s*.; 5-ft. screen, plate-glass shelves and mirror back, 110*s*.; bent-front cases, 2 ft. long, 20*s*.; 2½, 35*s*.; 3, 40*s*.; 5, 57*s*. 6*d*., and 7, 8*s*. each; 5-ft. screen, 50*s*.; material to fit a small shop, 15*l*.; about 20 nests of drawers various sizes; a large quantity of fittings suitable for cheap shops. Write for illustrated lists to R. Tomlinson, 15 St. Paul's Square, Birmingham.

6 and 7 ft. long handsome dispensing-screens, with plate-glass case at each end, and mirror centre with marble slab; 15 mahogany dispensing screens, all sizes, from 2 ft. 6 long up to 8 ft. 8 long, as fig. 40, 163, 164, 165, 155 Maw's; 10 upright counter-cases, with and without desks; 4 ft. 2 long, 6 ft. 2 long, 9 ft. 6 long handsome counter cases, as 97 and 102 Maw's; handsome mahogany show stands, with mirror backs, as fig. 19 and 54 Maw's; handsome mahogany cigar cases, with 4, 6, and 8 holes, as 53A Maw's; soda-water stand and label-chest, as 63 and 26 Maw's; sponge cases, as 90 and 92 Maw's; toothbrush cases, as 52 and 72 Maw's; 30 bent glass counter cases, from 2 ft. to 12 ft. long; 28 nests second-hand mahogany-fronted shop drawers, with glass labels and knobs, &c.; 10 ft., 12 ft. long, 15 ft. long complete chemist's shop fittings, with drawers, lockers, shelving, pilasters and cornices above, as 196 and 197 Maw's; 15 mahogany wall-cases, from 2 ft. to 20 ft. long; 8 mahogany window enclosures; 20 mahogany-top counters, with and without drawers; quantity warehouse counters and drawers; 14 glass shades on circular ebonised stands, from 18 to 26 inches high; leech aquarium; quantity pillar gas-brackets, with sealing-wax jets; 3 outside shop lamps and brackets; 150 composition mortars and pestles, all sizes, up to No. 12; 220 composition funnels, No. 3 to No. 6; counter and dispensing scales, as fig. 1, 4, and 7 Maw's; large machine for making sheep ointment or mixing powders; tea, coffee, and sugar mills, tincture presses, glass, pewter, and copper measures; 4,500 shop bottles and jars, all sizes; 120 window show carboys, all sizes; 22 handsome specie jars; and every description of fixtures and utensils required by the trade. Lloyd Rayner, 333 Kingsland Road, London, N.

To be Sold.—Nest of drawers, 12; 1-gallon store bottles, 1*s*. each; 10 2-gallon, 1*s*. 6*d*. each; various shop-jars, show-bottles, 2*s*. 6*d*. gallon; specie-jars, desks, counter-cases, pill-machines; handsome dispensing-screen, 5 ft. high, 5 ft. 9 in. long; lamps and irons, shelving, iron mortars, cupboards, &c.; handsome cigar counter-case, 12 divisions, gold labelled, others not labelled; tobacco-jars, sheet plate glass in mahogany frame, 5 ft. 10½ in. high, 4 ft. 10½ in. long; 2 mahogany doors glazed with embossed glass, scales, mahogany show-stand, medical hooks, surgical and tooth instruments; also various stoppered and plain bottles for pomades, eau de Cologne, essences, citrate magnesia, castor-oil, glycerine and lime-juice, 1 oz. white vials, graduated; eight tea-spoons, all clean; 20 per cent. off list prices; any quantity may be had; also, white covered pots for cold cream and pomade. 846 Old Kent Road.

Formulæ.

Reproductive or graph composition saline powder, 1*s*. 1*d*. each. 65/6.

Formula of celebrated Oxford cold cream, price 5*s*. Vectis, 1 North View, Station Road, Sandown, I.W.

A copy of my recipe book for 10*s*. 6*d*.; contains over a hundred formulæ; result of 15 years' experience in all branches of the trade. List free. Chemist, 2 Castle Hill, Hastings.

"Sheep-dipping Composition," pronounced best, cost easy; "Scab and Foot Rot Cure," excellent; "Black Oils," recipes 1*s*. each, lot 3*s*. 6*d*. Sanderson, Chemist, Willington, Durham.

Pink tooth paste (stiff), neuralgia specific (infallible), brilliantine limes and glycerine, marrow pomade (excellent), violet powder, 1*s*. each or six for 5*s*. H. Davies, Chemist, Machynlleth.

My formula for perfume, which lately obtained the premium, "having upwards of 170 competitors," I will forward on receipt of stamped addressed envelope and 18 stamps, Address, E. Evans, 12 Derwent Villas, Champion Hill, S.E.

New "Remedy for Toothache," which never fails; "Nigerine" patent blacking, cheaper and better than Nubian; "Digestive Relish," better than Yorkshire, costs 2*s*. 6*d*. gallon; "Limes and Glycerine," pure white, inseparable, and cheap; "Foaming Dentifrice," like Floriline, one-eighth cost; "Red Rose Lotion," resembles Sulpholine, elegant preparation; "Rheumatic Embrocation," quickly relieves pain, costs 7*d*. pint; "Amygdaline Balm," better than glycerine, one-sixth price; "Antispasmodic Elixir," for indigestion, flatulency, &c.; "Effervescent Depurative Saline" (like Eno's), entirely soluble, 10*d*. lb.; "Cryptzymosis," infallible injection for gleet, cures long-standing cases; "Campholyde" (external), specific for neuralgia; "Hair Restorer" (sine sulphur), transparent and sweet; "Liver Pills," vegetable, gentle and reliable in effect; "Stomach Corrector" (Dr. Taylor's), most invaluable; "Ladies' Pills," pronounced better than Widow Welch's; "Sal. Pungens. Odorif.," inexhaustible, non-deliquescent, 6*d*. per lb.; "Essence for Deafness," simple and effective; "Quinine and Iron Tonic," best and cheapest in market, bright and unchangeable; "Blood Purifying Powder," pleasant-taking old-fashioned remedy for autumn use. All above are genuine reliable preparations, easily made and yield splendid profit. Recipes, with full directions, 1*s*. 1*d*. each, three for 2*s*. 6*d*., post free. Brooks, Chemist, Louth. Detailed list free.

Specific for ringworm, itch, and all scurvy diseases. Thirty stamps to Geo. Smith, 1 St. James' Place, Forest Lane, Stratford, E.

Taraxacum and podophyllin, quite equal to those largely advertised, of an attractive colour, and keeps clear, the most agreeable and efficacious medicine for the liver ever introduced, easily prepared, and very profitable, price 2*s.* 6*d.*; sample forwarded on receipt of six stamps. E. Hampson, 21 Baxter Road, Islington, N.

Liquid stopping for teeth, 1*s.* 6*d.*; reliable cod-liver oil-cream, will not separate, 2*s.*; splendid remedy for hoarseness, used by the greatest singers and speakers of the day, price 5*s.*; to brighten gilt picture-frames, 1*s.* 6*d.*; to make gold paint equal to any made, 5*s.*; mixed perfume for oil or pomade not to be equalled, 1*s.* 6*d.*; valuable recipe for gold-plating, 5*s.*; a superior liquid glue, 1*s.* 6*d.* H. Bland, Chemist, Falsgrave, Scarborough.

Fragrant foaming dentifrice (like "Floriline"); marking ink, *sine* silver (aniline), writing executed defies chemicals; effervescing fruit saline (resembles Eno's); magic neuralgic drops (never-failing remedy); quinine and iron tonic (resembles Pepper's); lime-juice and glycerine (inseparable, white as milk); blue-black ink (non-corrosive, *sine* iron or galls); cherry tooth paste (never ferments, like Gornel's); brilliantine (inseparable, like Rimmel's); pill-coating, (pearly white, no mucilage or mastic used); glycerine jelly (perfectly transparent); crimson marking ink; hair restorer (colourless, no deposit, *sine* silver); aromatic vinegar; toilet vinegar (as Rimmel's); plate-powder (like Stevens' "Silicon"); Oleum Flavum Conc., for pomades (colour stable); soluble essence ginger (like Hay's); corn solvent, clear (not acid); liquor copaibæ comp. c. buchu et matico (mixes clear with water); gonorrhœa paste, excellent (Dr. Record's); taraxacum and podophyllin (resembles Pepper's); with many others; send stamp for list, stating wants. Chemical analyses for the trade. The toilet preparations are identical with those prepared by a wholesale West-end firm; others equally good; all inexpensive to make; 5*s.* each (five for 1*l.*). Readers are cautioned against cheap and worthless imitations. I was first to advertise formulæ in this journal. Note address, "Analyst," care of Mr. Warnes, 79 Gaisford Street, N.W.

The following formulæ may be had from E. Hampson, 21 Baxter Road, Islington, N., who guarantees their trustworthiness, or pledges himself to return the money if found otherwise:—Neuralgic pills, which positively cure 9 cases out of 10, and cost 3*d.* per gross, present proprietor clears over 70*l.* yearly by them without advertising, price 5*s.*; anti-spasmodic drops, which invariably relieve flatulence, colic, and incipient diarrhœa in a few minutes, being an elegant and unchangeable preparation, very profitable and thoroughly reliable, price 5*s.*; glycerine jelly, the most elegant and satisfactory preparation of the kind, perfectly transparent and cleanly in its application, price 2*s.* 6*d.*; the celebrated American pick-me-up (as made by an old city firm), costs 1*s.* per pint, and is the most agreeable "reviver" conceivable, its elegant appearance and remarkable efficacy render it a valuable addition to every pharmacy, price 5*s.*; toothache essence, acts like magic in all cases of exposed nerves from decayed teeth, absolutely without equal for the instant relief of pain, price 2*s.* 6*d.* Samples of any of above will be forwarded on receipt of six stamps.

Miscellaneous.

Several sized waterproof cart or van covers from 7*s.* 6*d.* King, Chemist, Soham.

Beer bottling and corking machine, cheap; quantity of packet dyes, half wholesale price. H., 51 Long Street, Middleton, Lancs.

Fireproof safe for sale, height 30 inches, two drawers, lever locks; price 5*l.*, or offers. Address, Weaver, Chemist, Dudley Road, Wolverhampton.

Deed-chest for sale, 18 inches long, 12 inches wide; price 3*l.* 10*s.*; a first-class article. Weaver, Chemist, Dudley Road, Wolverhampton.

To Manufacturers and Others.—A recently and carefully compiled MS. register, comprising a list of 5,000 of the best hotels in England, Scotland, and Ireland; cheap. 15/9.

Hot-air bath, copper, as Maw's, page 88, 9*s.*, in good condition; 6 doz. Rubine, pints, new, in 3-doz. cases, 3*s.* 6*d.* per doz., carriage paid, cases 2*s.* 6*d.* each; first remittance takes it. Coley, Chemist, Stroud.

To chemists in country or in Colonies.—To be sold cheap, 12 vols. Braithwaite's "Retrospect of Medicine," very useful for prescribing; secondhand counter-scales, window-globes, coloured door-lamps. 64/23.

A superior-toned violin, Cremona copy, perfect playing condition, handsome case, and mounted bow, price 30*s.* Approval J. Riley, 268 New Liverpool Street, Salford.

One hundred 1-gross boxes Mockett's pens for 5*l*; small quantities 13*s.* 6*d.* per dozen, or in barter. 63/8.

Plated bicycle, 54-inch Carver; splendid running order, price 14*l.*, packed in crate, cost over 20*l.*; or part cash and part Howard's quinine. A. Steward, jun., A. P. S., Great Yarmouth.

Æsthetic lily plate, unique service of 66 spoons, forks, and gold-embossed fruit spoons, 4*l.* 4*s.*; massive oval teatray, 4*l.* 10*s.*, a presentation unused. Approval, Mrs. Hoskins, 147 Varna Road, Edgbaston.

WANTED.

Shop jars, bottles, &c. Tully, Tunbridge Wells.

A large veterinary syringe and set latest pattern hobbles; price to Mr. Olive, Briton Ferry.

Small's veterinary tablets. Hulbert, Chemist, Glastonbury.

Tooth-stopping instruments, good and cheap. Buckham, Houghton-le-Spring.

Carboy, circumference about 47 inches, height 32 inches. Rhei, 11 Mayer Street, Hanley.

Attfield's "Chemistry," Parrish's "Pharmacy," Piesse's "Perfumery," Squire's "Companion," latest editions; state price. 67/1.

Pereira's "Materia Medica"; a standard work on diseases. Address, Mr. Knot, Langley, Oldbury.

Cheap simple treatise on horse and cattle, or good recipe for same. Billington, Chemist, Barnsley.

Samuel Moore & Co.'s bronchital cigarettes; state quantity and price. Macfarlane, Chemist, Wishaw.

Homœopathic case, with or without medicines, Leath & Ross, or Ashton & Parsons. J. H. Read, Chemist, Upper Holloway.

Last edition of Bentley's "Botany," must be in good condition. State price to G. W. B., London House Yard, St. Paul's, E.C.

Drawers, shelving, bottles, jars, carboys, cases, mould and press for soap-tablets, Squire's "Companion," last edition. 64/26.

Britten's "Dispenser's Vade-mecum," The "Homœopathic Pharmacopœia," latest editions, and in good order; state lowest price. 63/21.

Three circular stands for 8-gallon carboys; opaque blue (turquoise) stoppered and syrup-bottles; also bottles and jars with recess labels. Wilson, Chemist, Devonport.

Personalities.

MESSRS. PRENTICE BROTHERS, chemical manufacturers, Stowmarket, have admitted into partnership Messrs. Ernest and E. Rupert Prentice, and the firm now consists of four brothers.

MESSRS. JAMES & ARTHUR BIDWELL, two partners of the late old-established firm of S. Bidwell & Sons, brush manufacturers, have purchased an extensive property, with mills and water power, at Axminster, where they have re-entered on their former line of business. We suppose we may soon expect to hear again from them of some startling novelties in tooth brushes.

MR. HENRY CHILD, F.C.S., who for the past seven years has had the direction of the chemical laboratories of Messrs. Davy, Yates & Routledge, and who previously managed the business of Messrs. Bolton & Co., Holborn Bars, has now joined the firm of Messrs. W. E. Butt & Co., Union Chemical Works, Debnams Road, Rotherhithe, who will henceforth trade as Butt, Child & Co.

MR. R. B. BUTTERFIELD has retired from the firm of Butterfield & Dunn, chemists and druggists, Shipley, leaving to Mr. Henry Dunn, his assistant and partner for the last 20 years, the sole proprietorship of the business.

THE *City Press* says that probate has recently been granted of the will of Mr. Charles Thomas Ingram, of the firm of Messrs. Ingram & Royle, 119 Queen Victoria Street, mineral water importers and wine merchants, late of 46 Abbey Road, St. John's Wood. The personal estate exceeded 15,000*l.*

PHARMACY IN NEW ZEALAND.—We have received a cutting from the *Auckland Weekly News*, containing a large wood engraving of the pharmacy conducted by Mr. Aicken, in Queen Street, Auckland, as well as an account of the interior arrangements. It is evident that the shop would compare not unfavourably with some of the best English establishments. The floor is of Minton tiles, and the cedar fittings cost 1,000*l.* Mr. Aicken is the proprietor of a famous infants' food, and of a panacea for chest diseases, composed of eucalyptus and hypophosphites. He is agent for Arnold's surgical instruments and for other English firms.



THE Board of Trade returns for August were again favourable in a marked degree. The exports of British and Irish produce show a gain of nearly 11 per cent. in value over those of August of last year. Analysis of the figures seems to show that in some of the leading articles of British manufacture there is now a tendency to recovery of price, the surest sign of true demand. The value of the imports for the month reached 32,691,093*l.*, against 31,019,087*l.* in August, 1880. The exports are reported at 21,180,695*l.*, against 19,114,315*l.* in August, 1880. The following are the figures relating to the export chemical trade:—

	August, 1880		August, 1881
Alkali	.. cwt. 596,035	..	594,113
Alkali	..value £21,2835	..	£187,103
Other chemicals	..value £183,200	..	£213,508

The chemical markets have been fairly active, and orders are still competed for, though alkali manufacturers continually declare that they are working at a loss.

Soda crystals have been dull and selling down to 63*s.* 9*d.*, but the latest quotations indicate a recovery. Bicarb is in fair demand, but for caustic there is less inquiry.

Tartaric acid is dull, and may be bought cheaper. Foreign crystals are dealt in at 1*s.* 6½*d.* and English at 1*s.* 7*d.* For citric there is a good average business, but it is fractionally easier than last month. Cream of tartar is very firm, especially for firsts, which are quite scarce on this market. Oxalic acid is somewhat stronger. Borax is a trifle higher, with anticipations of an advance. Refined saltpetre is firm at a slight advance.

In the cinchona market cuprea barks are considerably affecting the price of other South American sorts. It is now one of the favourite kinds for the quinine makers, and arrives in great quantities. At the last August sales over 3,000 bales of cuprea were comprised in a total stock of 7,000 offered. The effect was a general reduction of 3*d.* to 4*d.*, and sales were restricted because buyers wanted still further concessions, which holders were not then prepared to yield. During the past year the value of South American barks has depreciated to the extent of 25 to 30 per cent. That this must tell on the price of quinine before long is pretty obvious, though for the present makers all round seem to be too full of orders to allow of any pressure.

The opium market has been a curious study for some time past. Notwithstanding all probability to the contrary, when calculations indicated the rapid approach of exhaustion of the stock, it steadily declined, but when the reports of the largest crop known became confirmed prices took a turn upwards again. This shows how near the prophets of the boom were to getting justified by results. At present it appears probable that a range of prices a little above the lowest point touched will be maintained, and as one of our correspondents in Smyrna shows, there is fair reason for anticipating at least the possibility of an advance towards the winter. Something like a third of the reported crop has now come into Smyrna, and accounts agree in reporting it to be of inferior quality, "the paste, as a general rule, being dark and chaffy; but it is hoped that henceforward this will not be the case, as the better qualities are usually retained in the interior till the early consignments are run off."

Glycerine is still firm, though some slight variations in prices are sometimes caused by sales of stock which has been held speculatively. There does not seem any prospect of permanently lower prices for this product for some time, though it will come sooner or later from the introduction of a process by which it can be economically recovered in the English soap-works. At present the demand for engineering works, in the form of nitro-glycerine, and the prospective demand for the Panama Canal, is in all probability quite sufficient to keep it up to its present level.

Mercurials are at last month's prices, though there is some expectation of a rise, as it is rumoured that the supply of the metal from California is likely to be limited, which will give a chance for European controllers of the market to force the price for a while.

The fruits and flowers of the South of Europe have been deficient this year in consequence of excessive heat and deficient rain. Many essential oils will consequently be dearer. Lavender, lemon, bergamot, rosmary, and thyme are especially likely to be affected.

Castor oil is now more firmly held, and marks an advance. Cod-liver oil, too, as we anticipated, has gone rather higher. Balsam capaiva keeps at relatively high prices, but is now more easily obtainable. Wood oil quoted at last sales at 10*d.* Camphor has somewhat recovered, and refiners have very promptly enhanced their quotations. Cubebs were held at last sales for 10*l.*, but can be bought for 9*l.* Ergot of rye is likely to be scarce, and is held for 2*s.* to 3*s.* Musk is taken for higher prices. Shenshi rhubarb commands higher rates, and seneka root has advanced. Scammony has sold at 35*s.*, but best qualities are now held for 40*s.* Senna is bought at a slight advance. Cinnamon has realised at the late quarterly sales an advance of 4*d.* to 10*d.*, according to quality.

OILS.—Linseed has been a little depressed, but has again recovered, and for immediate sales is firm at the advanced prices quoted. For deliveries during the winter, however, it is offered at 10*s.* to 15*s.* lower. Rape oil has further advanced during the month, with occasional reactions. Olive oils are very firm, at higher rates, 39*l.* having been paid for Levant last week, and since then 41*l.* for Seville. Cocoanut is somewhat higher, and palm has advanced 2*s.* 6*d.* per cwt. Sperm is out of demand, and seal, in the absence of business, marks a decline. Turpentine has been the subject of a good deal of speculation in America, and has advanced considerably. At the present moment it is exceptionally firm at 42*s.* per cwt., both for spot and forward. Petroleum has been rather weak during this month, in consequence of large supplies which had been bought for September deliveries being put on the market, but it is getting rather stronger, and is quoted 7*d.* for November-December.

Monthly Statement of the Stocks of the following Drugs at the Port of London on August 31, 1881 *and* 1880.

	1881	1880		1881	1880
Aloes .....cs	3,176	1,898	Gum (*cont.*)—		
,, ...kegs	1	1	Damar.... pkgs	3,184	4,417
,, ...gourds	211	117	Galbanum ,,	19	9
Aniseed, Star chts	921	406	Gamboge.. ,,	234	108
Arrowroot ....cks	12,867	15,587	Guaiacum.. ,,	47	44
,, bxs & tins	7,608	14,696	Kino ..... ,,	21	37
Balsam....cks, &c.	9	142	Kowrie .....tns	541	695
Bark, Medicinal cks, &c.	1,769	718	Mastic ....pkgs	126	126
,, srns, &c.	34,551	21,211	Myrrh, E.I. ,,	268	164
Borax.....pkgs	637	440	Olibanum.. ,,	6,656	3,126
Bees' Wax ..bls & srns	830	594	Sandarac.. ,,	34	162
,, cks & cs	1,721	2,140	Senegal.....tns	8	15
,, cakes	10	227	Tragacanth pkgs	1,783	2,562
Wax, Jap. veg. pkgs	5,750	10,492	Ipecac...cks & bgs	180	114
Camphor ....pkgs	7,741	7,472	Jalap.....bls	221	241
Cardamoms ..chts	592	305	Nux Vomica pkgs	1,057	875
Cocc. Ind. bgs, &c.	842	911	Oil—		
Colombo root pkgs	1,286	375	Castor .....cks	14	87
Cream Tartar..cks	60	190	,, ...cs	8,325	9,953
Cubebs .....bgs	93	93	Palm .....tns	372	606
Dragonsblood chts	224	188	Cocoanut ....tns	11,009	5,506
Galls, E.I. cks & cs	3,270	3,945	Olive ..cks, &c.	1,385	679
M'terranean sks	3,066	757	Aniseed .....cs	122	260
Gum—			Cassia .....cs	518	325
Ammoniac pkgs	288	381	Opium ..chts, &c.	1,157	907
Animi & Copal pkgs	4,428	2,516	Rhubarb.....cbts	1,187	1,023
Arabic, Barbary pkgs	964	1,586	Sarsaparilla ....bls	504	521
Turkey .. ,,	2,143	2,574	Senna ....bls, &c.	1,509	1,782
E.I..... ,,	3,218	2,159	Shellac—		
Assafœtida ,,	519	293	Orange..chts,&c.	16,484	21,162
Benjamin.. ,,	2,582	2,350	Garnet.. ,,	15,719	13,306
			Button.. ,,	5,207	2,325
			Turmeric ....tns	2,595	2,841
			Vermilion	51	133

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mincing Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.	Last Month				This Month			
ACIDS—	s.	d.		s. d.	s.	d.		s. d.
Acetic ..... per lb.	0	3¾	to	0 0	0	3¾	to	0 0
pure ..... „	0	6	..	0 9	0	6	..	0 9
glacial .... „	1	0	..	1 1	0	11	..	1 0
Benzoic Sublimate „	6	0	..	0 0	6	0	..	0 0
Ex. Gum .. per oz.	0	9	..	0 0	0	9	..	0 0
Citric ..... „	1	11	..	0 0	1	11	..	0 0
Gallic ..... „	4	3	..	0 0	3	9	..	0 0
Hydrochlor .....per cwt.	4	6	..	7 6	4	6	..	7 6
Nitric ..... per lb.	0	3	..	0 4	0	3	..	0 4
Oxalic ..... „	0	4½	..	0 0	0	4½	..	0 4¾
Sulphuric ..... „	0	1	..	0 0	0	1	..	0 0
Salicylic ..... „	7	6	..	8 0	7	0	..	7 9
Tannic ..... „	1	7	..	2 8	1	7	..	2 8
Tartaric, English.. „	1	7½	..	1 7¾	1	7	..	0 0
foreign .. „	1	7½	..	0 0	1	6½	..	0 0
ANTIMONY, crude.....per cwt.	40	0	..	0 0	40	0	..	41 0
star ..... „	57	0	..	59 0	55	0	..	57 0
ARSENIC, lump..... „	24	0	..	0 0	24	0	..	0 0
powder..... „	10	9	..	0 0	10	6	..	10 9
BRIMSTONE, rough .... per ton	122	6	..	127 6	125	0	..	130 0
roll .....per cwt.	8	6	..	9 6	8	6	..	9 6
flour..... „	10	9	..	12 6	10	9	..	12 6
GLYCERINE, German refined..... „	112	0	..	133 0	110	0	..	135 0
crude brown ..... „	75	0	..	0 0	75	0	..	52 0
IODINE, dry ..... per oz.	0	6	..	0 6¼	0	6	..	0 6¼
resublimed .. „	0	0	..	0 0	0	8	..	0 8
MAGNESIA, calcined .. per lb.	1	0	..	1 6	1	0	..	1 6
Hwds.	5	0	..	0 0	5	0	..	0 0
MERCURY .....per bott.	127	6	..	130 0	125	0	..	0 0
MINIUM, red .....per cwt	16	9	..	17 0	16	9	..	17 0
orange ..... „	25	6	..	29 6	25	6	..	29 6
PRECIPITATE, red..... per lb.	3	0	..	0 0	3	0	..	0 0
white .. „	2	11	..	0 0	2	11	..	0 0
PRUSSIAN BLUE ..... „	0	0	..	0 0	0	0	..	0 0
SANTONINE ..... „	21	6	..	0 0	18	0	..	0 0
SALICINE ..... „	12	6	..	0 0	12	6	..	0 0
THYMOL..... „	25	0	..	0 0	24	0	..	0 0
SALTS—								
Alum ..... per ton	120	0	..	0 0	120	0	..	0 0
powder ..... „	147	6	..	0 0	147	6	..	0 0
Ammonia: Carbonate ..... per lb.	0	6½	..	0 6½	0	6½	..	0 6½
Hydrochlorate, crude, white ..... per ton	600	0	..	760 0	600	0	..	760 0
Sulphate..... „	4.0	0	..	415 0	405	0	..	415 0
Argol, Cape .....per cwt.	80	0	..	98 0	80	0	..	98 0
Red..... „	65	0	..	80 0	65	0	..	80 0
Oporto, red .... „	36	0	..	36 6	36	0	..	36 6
Sicily „ .... „	0	0	..	0 0	0	0	..	0 0
Bleaching powder .... „	5	0	..	5 3	5	0	..	5 3
Borax, British refined.. „	61	0	..	63 0	60	0	..	62 0
Calomel ..... per lb.	2	8	..	0 0	2	8	..	0 0
Chloral hydrate, Saame's „	4	2	..	4 4	4	2	..	4 4
Liebreich's .... „	5	6	..	6 0	5	6	..	6 0
Copper: Sulphate .....per cwt.	19	0	..	19 3	19	3	..	0 0
Copperas, green .. .. per ton	45	0	..	0 0	45	0	..	0 0
Corrosive Sublimate .. per lb.	2	1	..	0 0	2	1	..	0 0
Cream Tartar, French..per cwt.	117	0	..	118 6	121	0	..	0 0
brown .. „	94	6	..	0 0	97	6	..	0 0
Epsom Salts ..... „	4	0	..	4 9	4	0	..	4 9
Glauber Salts..... „	4	3	..	5 6	4	3	..	5 3
Magnesia: Carbonate	42	6	..	0 0	42	6	..	0 0
Pond, Hwds.	72	0	..	0 0	72	0	..	0 0
Morphia Murias ..... „	6	3	..	0 0	6	9	..	0 0
Phosphorus ..... per lb.	1	11	..	2 0	1	11	..	2 0
Potash: Bichromate ..... „	0	6	..	0 0	0	6	..	0 0
Carbonate: Potashes, Canada, 1st sort .....per cwt.	29	0	..	0 0	29	6	..	30 0
Pearlashes, Canada, 1st sort ..... „	36	6	..	0 0	36	6	..	37 0
Chlorate..... per lb.	0	5⅞	..	0 0	0	5⅞	..	0 6
Prussiate ..... „	0	9½	..	0 0	0	9½	..	0 9¾
red ..... „	1	11	..	0 0	1	11	..	0 0
Sulphate..... „	8	6	..	9 0	9	0	..	10 0
Potassium: Bromide	1	5	..	1 6	1	5	..	1 6
Chloride .....per cwt.	8	0	..	0 0	8	6	..	9 0
Iodide ..... per lb.	8	0	..	8 6	8	0	..	0 0
Quinine: Sulphate, British, in bottles..... per oz.	10	0	..	0 0	10	0	..	10 3
Sulphate, French .... „	10	0	..	10 3	10	3	..	10 9
Sulphate, German .. „	8	6	..	8 9	8	6	..	0 0
Sal Acetos ..... per lb.	0	6⅝	..	0 0	0	6½	..	0 6⅝
Sal Ammoniac, British per cwt.	44	0	..	45 0	44	0	..	45 0
Saltpetre: Bengal, 6 per cent. or under.....per cwt.	23	9	to	24 0	24	0	to	24 6
Bengal, over 6 per cent..... „	22	6	..	23 6	22	9	..	23 9
British, refined.... „	27	0	..	28 6	27	0	..	29 0
Soda: Bicarbonate .. „	10	0	..	10 3	10	0	..	10 3
Hwds. ..... „	45	0	..	0 0	45	0	..	0 0
Carbonate: Soda Ash .....per deg	0	1⅜	..	0 0	0	1⅜	..	0 0
Soda Crystals .. per ton	67	6	..	0 0	66	9	..	0 0
Caustic	9	9	..	10 0	10	0	..	10 3
Hyposulphite ....per cwt.	8	0	..	0 0	8	0	..	0 0
Nitrate ..... „	14	3	..	14 6	14	3	..	14 6
Zinc Sulphate ..... „	12	0	..	14 0	12	0	..	14 0
SUGAR OF LEAD, White „	36	0	..	38 0	36	0	..	38 0
Brown „	26	0	..	0 0	26	0	..	0 0
VERDIGRIS ..... per lb.	0	10½	..	1 2	0	10½	..	1 2
VERMILION, English .. „	2	5	..	0 0	2	5	..	0 0
China .... „	2	2	..	0 0	2	2	..	0 0
DRUGS.								
ALOES, Hepatic .....per cwt.	70	0	..	140 0	70	0	..	140 0
Socotrine ..... „	55	0	..	180 0	55	0	..	180 0
Cape, good .... „	55	0	..	59 0	56	0	..	62 6
Inferior..... „	49	0	..	54 6	45	0	..	55 6
Barbadoes .... „	50	0	..	160 0	50	0	..	180 0
Curaçoa ..... „	50	0	..	65 0	50	0	..	140 0
AMBERGRIS, grey..... per oz.	87	6	..	115 0	90	0	..	120 0
BALSAM— Canada ..... per lb.	1	1	..	1 2	1	2	..	1 3
Capivi ..... „	2	2	..	2 6	2	2	..	2 6
Peru ..... „	10	0	..	10 3	9	6	..	9 9
Tolu..... „	2	2	..	0 0	2	2	..	0 0
BARKS— Canella alba .....per cwt.	25	0	..	26 6	25	0	..	26 6
Cascarilla ..... „	18	0	..	21 6	15	6	..	20 0
CINCHONA— Peru, Crown and Gray .....per lb.	0	8	..	2 10	0	8	..	2 10
Calisaya, flat ..... „	2	6	..	3 6	2	6	..	3 6
„ quill ..... „	2	0	..	9 0	2	0	..	9 0
Carthagena ..... „	0	6	..	4 8	0	6	..	4 8
Columbian & N. G... „	0	6	..	9 0	0	6	..	9 0
Pitayo & Maracaibo.. „	0	6	..	3 6	0	6	..	3 6
Red ..... „	2	0	..	10 6	2	0	..	10 6
East India ..... „	0	6	..	3 0	0	6	..	3 0
„ good & fine „	3	1	..	10 6	3	1	..	10 6
BUCHU LEAVES..... „	0	2	..	0 9	0	2	..	0 9
CAMPHOR, China .....per cwt.	82	6	..	0 0	87	6	..	0 0
Japan ..... „	85	0	..	0 0	92	6	..	0 0
Refin. Eng... per lb.	1	3	..	0 0	1	3½	..	0 0
Tablets .... „	0	0	..	0 0	1	4	..	1 4½
CANTHARIDES, China .. „	1	4	..	1 5	1	4	..	1 5
„ Russian „	3	0	..	3 4	3	0	..	3 4
CHAMOMILE FLOWERS..per cwt.	25	0	..	75 0	25	0	..	75 0
CASTOREUM ..... per lb.	20	0	..	35 0	20	0	..	35 0
DRAGON'S BLOOD, lp. ..per cwt.	80	0	..	280 0	80	0	..	280 0
FRUITS AND SEEDS (*see also* Seeds *and* Spices) Anise, China Star....per cwt.	85	0	..	86 6	85	0	..	86 6
Spanish, &c.. .. „	26	0	..	36 0	26	0	..	36 0
Beans, Tonquin .... per lb.	4	0	..	7 0	4	0	..	7 0
Cardamoms, Malabar, good..... „	6	3	..	8 6	6	3	..	8 6
inferior .... „	3	0	..	6 0	3	0	..	6 0
Aleppy .... „	2	6	..	6 0	2	6	..	6 9
Madras .... „	2	6	..	4 6	2	6	..	4 6
Ceylon..... „	2	0	..	3 6	2	0	..	3 6
Cassia Fistula .....per cwt.	12	0	..	15 0	12	0	..	15 0
Cocculus Indicus .... „	7	6	..	8 6	7	6	..	8 6
Colocynth, apple .... per lb.	0	6	..	1 0	0	6	..	1 0
Croton Seeds.....per cwt.	65	0	..	67 6	65	0	..	67 6
Cubebs ..... „	180	0	..	200 0	180	0	..	0 0
Cummin ..... „	40	0	..	47 6	45	0	..	47 6
Fenugreek ..... „	9	0	..	13 0	9	0	..	13 0
Juniper Berries .... „	10	6	..	11 0	10	6	..	11 0
Nux Vomica ..... „	6	0	..	9 9	7	0	..	10 0
Tamarinds, E. India „	5	6	..	11 0	5	6	..	11 0
West India..... „	9	6	..	14 0	9	6	..	15 6
Vanilla, large ..... per lb.	25	0	..	33 0	24	0	..	28 0
inferior ..... „	10	0	..	24 6	16	0	..	23 6
GINGER, Preserved .... „	0	4⅜	..	0 9	0	4⅜	..	0 9
HONEY, Chili.....per cwt.	40	0	..	46 0	45	0	..	52 0
Jamaica ..... „	34	0	..	40 0	34	0	..	41 0
IPECACUANHA ..... per lb.	4	2	..	4 6	4	3	..	4 9
ISINGLASS, Brazil..... „	2	2	..	5 0	2	9	..	4 9
Tongue sort .... „	2	9	..	5 0	2	11	..	5 5
East India ..... „	0	11	..	5 0	0	11	..	5 0
West India..... „	2	10	..	4 9	2	9	..	4 7
Russ. long staple „	7	0	..	10 0	7	0	..	10 0
„ inferior .. „	0	0	..	0 0	0	0	..	0 0
„ Simovia .. „	2	3	..	2 6	2	3	..	2 6
JALAP, good ..... „	0	9½	..	0 10	0	9½	..	0 10
infer. and stems „	0	8	..	0 9	0	8	..	0 9
LEMON JUICE ..... per deg.	0	0	..	0 0	0	0	..	0 0
LIME JUICE .....per gall.	2	6	..	2 10	2	4	..	2 6
LIQUORICE, Spanish....per cwt.	0	0	..	0 0	0	0	..	0 0
Liquorice Root .... „	0	0	..	0 0	0	0	..	0 0
MANNA, flaky ..... per lb	4	0	..	4 6	4	0	..	4 6
MUSK, Pod..... per oz.	9	6	..	58 0	11	0	..	71 0
Grain..... „	30	0	..	60 0	30	0	..	60 0
Yunan ..... „	32	0	..	38 6	32	0	..	38 6
OILS (*see also separate list*) Almond, expressed .. per lb.	1	4	..	0 0	1	4	..	0 0
Castor, 1st pale..... „	0	3½	..	0 4	0	3⅝	..	0 4½
second ..... „	0	3¼	..	0 3⅜	0	3¼	..	0 3½
Cod-liver.....per gall.	5	0	..	5 6	5	0	..	6 0

	Last Month			This Month		
Essential Oils:	s. d.		s. d.	s. d.		s. d.
Almond ..... per lb.	0 0	to	0 0	17 9	to	20 0
Anise-seed, star .. „	9 0	..	0 0	9 0	..	0 0
„ German „	10 9	..	0 0	10 6	..	0 0
Bergamot ..... „	9 0	..	10 0	9 3	..	10 3
Cajeput .....per bott.	3 0	..	3 4	4 3	..	0 0
Caraway ..... per lb.	2 6	..	6 6	3 0	..	6 6
Cassia ..... „	3 11	..	4 0	3 11	..	4 0
Cinnamon ..... per oz.	7 6	..	7 6	5 6	..	0 0
Cinnamon-leaf .... „	0 2½	..	0 0	0 2½	..	0 0
Citronelle ..... „	0 3½	..	0 0	0 3½	..	0 0
Clove ..... „	7 0	..	0 0	6 9	..	7 0
Lavender, Exotic .. per lb.	1 6	..	7 6	1 8	..	8 2
„ Mitcham „	130 0	..	0 0	130 0	..	0 0
Lemon..... „	6 6	..	7 6	6 3	..	7 0
Lemongrass ..... per oz.	0 3	..	0 0	25 8	..	0 0
Neroli ..... „	7 0	..	10 3	6 6	..	9 6
Nutmeg ..... „	0 5½	..	0 0	0 5½	..	0 0
Orange ..... per lb.	7 3	..	11 3	7 3	..	11 3
Otto of Roses .... per oz.	10 0	..	23 0	10 0	..	25 3
Patchouli ..... „	2 0	..	3 10	2 0	..	4 1
Peppermint:						
American ..... per lb.	12 9	..	0 0	12 6	..	0 0
(H.G. Hotchkiss).. „	13 3	..	0 0	13 9	..	0 0
English ..... „	29 0	..	30 0	29 0	..	30 0
German ..... „	13 9	..	0 0	13 9	..	0 0
Rosemary ..... „	1 6	..	2 11	1 6	..	2 11
Sassafras..... „	2 3	..	0 0	2 5	..	0 0
Spearmint ..... „	13 0	..	0 0	13 0	..	0 0
Thyme ..... „	1 8	..	4 7	1 11	..	5 1
Mace, expressed .... per oz.	2 0	..	3 0	2 0	..	3 0
Opium, Turkey..... per lb.	13 0	..	15 0	13 0	..	15 0
„ inferior ..... „	8 0	..	12 0	8 0	..	12 0
Quassia (bitter wood) per ton	80 0	..	100 0	80 0	..	100 0
Rhubarb, China, good						
and fine ..... per lb.	3 0	..	4 3	3 0	..	4 3
Middling to fair .. „	1 4	..	2 11	1 4	..	2 11
Ordinary..... „	0 10	..	1 3	0 9	..	1 3
ROOTS—Calumba ....per cwt.	£0 0	..	30 0	21 0	..	27 0
China ..... „	20 0	..	24 0	20 0	..	24 0
Chiretta ..... per lb.	0 11	..	1 0	0 11	..	1 0
Galangal.....per cwt.	18 0	..	22 0	20 0	..	26 0
Gentian ..... „	18 0	..	19 0	18 0	..	19 0
Orris ..... „	50 0	..	60 0	40 0	..	60 0
Pellitory..... „	55 0	..	65 0	42 0	..	60 0
Pink..... per lb.	0 8	..	1 3	0 8	..	1 3
Rhatany..... „	0 1½	..	0 4	0 1½	..	0 4
Seneka..... „	2 6	..	2 9	2 9	..	2 10
Snake ..... „	1 5	..	1 7	1 3	..	1 8
Saffron, Valencia .... „	50 0	..	52 0	£0 0	..	52 0
Salep .....per cwt.	100 0	..	130 0	100 0	..	130 0
Sarsaparilla, Lima .. per lb.	0 5	..	0 6	0 5	..	0 6
Guayaquil ..... „	1 5	..	1 6	1 4	..	1 5
Honduras ..... „	1 5½	..	2 0	1 5½	..	2 0
Jamaica ..... „	1 6	..	1 9	1 6	..	1 9
Sassafras..... per cwt.	0 0	..	0 0	0 0	..	0 0
Scammony, Virgin .... per lb.	35 0	..	40 0	35 0	..	40 0
second and ordinary „	10 0	..	30 0	10 0	..	30 0
Senna, Bombay ..... „	0 1	..	0 3	0 1	..	0 3
Tinnivelly ..... „	0 1½	..	1 0	0 1½	..	1 0
Alexandria ..... „	0 2	..	2 3	0 2	..	2 3
Spermaceti, refined .. „	1 0	..	1 2	1 0	..	1 2
American ..... „	0 10	..	0 11	0 9	..	0 11
Squills ..... „	0 1	..	0 2	0 1	..	0 2

GUMS.

	£ s.		£ s.	£ s.		£ s.
Ammoniaci, drop..... per cwt	1 10	..	2 5	1 10	..	2 6
Animi, fine washed .... „	18 15	..	19 10	18 15	..	19 10
sorts..... „	10 0	..	16 10	10 0	..	16 10
Arabic, pale picked.... „	1 17	..	2 12/6	1 17	..	2 12/6
sorts, mid. to fine „	1 10	..	1 13	1 10	..	1 13
Turkey, pick. gd. to fin. „	6 0	..	9 10	6 0	..	9 10
second & inferior „	2 10	..	5 10	2 10	..	5 10
sorts ..... „	2 0	..	2 10	2 0	..	2 10
Assafœtida, cm. to fin. „	0 15	..	2 10	0 15	..	2 10
Benjamin, 1st & 2nd.. „	10 0	..	24 0	10 0	..	24 0
	s. d.		s. d.	s. d.		s. d.
Copal, Manilla..... „	18 0	..	67 0	18 0	..	67 0
Angola, red ..... „	120 0	..	130 0	150 0	..	155 0
Dammar, pale ..... „	70 0	..	95 0	70 0	..	95 0
Euphorbium..... „	38 0	..	60 0	38 0	..	60 0
Galbanum ..... per lb.	0 0	..	0 0	0 0	..	0 0
Gamboge, picked pipe per cwt.	240 0	..	312 6	235 0	..	300 0
Guaiacum..... per lb.	0 10	..	3 0	0 10	..	3 0
Kino ..... per cwt.	57 0	..	120 0	57 0	..	120 0
Kowrie, sorts ..... „	33 0	..	49 0	50 0	..	60 0
selected ..... „	102 6	..	200 0	102 6	..	200 0
Mastic, picked..... per lb.	2 6	..	4 0	2 6	..	4 0
Myrrh, good and fine per cwt.	184 6	..	200 0	182 6	..	200 0
ordinary to fair.. „	70 0	..	180 0	70 0	..	180 0
Olibanum, p. drop .... „	54 0	..	57 0	52 0	..	56 0
amber & yellow „	35 0	..	53 0	35 0	..	51 0
Senegal..... „	35 0	..	50 0	35 0	..	50 0
Sandarac..... „	100 0	..	120 0	97 6	..	120 0
Shellac, Orange..... „	155 0	..	160 0	152 6	..	157 6
Liver ..... „	127 6	..	145 6	120 0	..	140 0
Thus ..... „	0 0	..	0 0	0 0	..	0 0
Tragacanth, leaf .... „	280 0	..	400 0	280 0	..	400 0
in sorts ..... „	40 0	..	270 0	40 0	..	270 0

OILS.

	£ s.		£ s.	£ s.		£ s.
Seal, pale ..... per tun	30 0	..	0 0	29 0	..	0 0
yellow to tinged „	28 0	..	29 0	26 0	..	28 10
brown ..... „	24 0	..	25 0	23 0	..	24 0
Sperm..... „	58 0	..	59 0	58 0	..	59 0

	Last Month			This Month		
Oils, *continued*:—	£ s.		£ s.	£ s.		£ s.
Sperm body..... per tun	0 0	to	0 0	0 0	to	0 0
Cod..... „	31 6	..	0 0	30 0	..	31 0
Whale, South Sea, pale „	28 0	..	29 0	28 0	..	29 0
yellow „	27 0	..	27 10	27 0	..	27 10
brown „	21 0	..	23 0	21 0	..	23 0
East India, Fish „	0 0	..	0 0	0 0	..	0 0
Olive, Seville ..... per ton	0 0	..	0 0	41 0	..	0 0
Gioja..... „	0 0	..	0 0	0 0	..	0 0
Levant..... „	37 10	..	0 0	39 0	..	0 0
Mogador ..... „	37 0	..	0 0	37 10	..	0 0
Spanish ..... „	38 0	..	39 0	0 0	..	0 0
Sicily..... „	0 0	..	0 0	0 0	..	0 0
Cocoanut, Cochin .... „	30 0	..	0 0	31 0	..	0 0
Ceylon .... „	23 10	..	0 0	27 10	..	27 15
Mauritius.. „	27 0	..	27 10	0 0	..	0 0
Ground Nut and Gingelly:						
Bombay	0 0	..	0 0	0 0	..	0 0
Madras	0 0	..	0 0	0 0	..	0 0
Palm, fine	30 0	..	30 10	32 10	..	0 0
Linseed	27 0	..	27 5	26 12/6	..	26 17/6
Rapeseed, English, pale	32 5	..	32 10	33 10	..	0 0
brown	30 5	..	30 10	31 5	..	31 10
Foreign, pale	0 0	..	0 0	0 0	..	0 0
brown	0 0	..	0 0	0 0	..	0 0
Cottonseed	27 0	..	27 5	28 10	..	0 0
Lard	60 0	..	61 0	61 0	..	0 0
Tallow	28 0	..	42 0	26 10	..	45 0
	s. d.		s. d.	s. d.		s. d.
Turpentine, American per cwt.	35 0	..	0 0	42 0	..	0 0
Petroleum, refined .. per gall.	0 6⅝	..	0 0	0 6¾	..	0 6⅞
Spirit....	0 10	..	0 10½	0 10	..	0 10½

SEEDS.

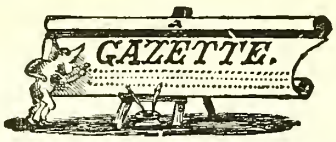
Canary ..... per qr.	37 6	..	45 0	37 6	..	45 0
Caraway, English.... per cwt.	0 0	..	0 0	0 0	..	0 0
German, &c.	28 0	..	30 0	28 0	..	30 0
Coriander	18 0	..	24 0	16 0	..	24 0
Hemp ..... per qr.	29 0	..	30 0	29 0	..	30 0
Linseed, English..... „	0 0	..	0 0	0 0	..	0 0
Black Sea & Azof „	49 0	..	0 0	50 0	..	0 0
Calcutta ..... „	51 0	..	0 0	51 9	..	0 0
Bombay ..... „	52 0	..	0 0	52 6	..	0 0
St. Petersburg .. „	47 0	..	0 0	47 0	..	48 0
Mustard, brown .....per bshl.	0 0	..	0 0	0 0	..	0 0
white ..... „	6 0	..	11 0	5 0	..	10 0
Poppy, East India .... per qr.	48 0	..	0 0	47 6	..	0 0

SPICES.

Cassia Lignea..... per cwt.	38 6	..	39 0	38 6	..	39 0
Vera ..... „	28 0	..	34 0	28 0	..	34 0
Buds ..... „	48 6	..	50 0	48 6	..	50 0
Cinnamon, Ceylon:						
1st quality..... per lb.	1 4	..	2 6	1 9	..	3 0
2nd do. ..... „	1 2	..	2 2	1 6	..	2 5
3rd do. ..... „	0 11	..	1 9	1 2	..	2 0
Tellicherry..... „	1 5	..	1 6	1 6	..	2 2
Chips ..... „	0 3	..	0 5¾	0 3½	..	1 3
Cloves, Penang ..... „	1 9	..	2 1	1 9	..	2 1
Amboyna ..... „	1 4	..	1 5½	1 4	..	1 5½
Zanzibar..... „	0 11½	..	1 0¼	0 11½	..	0 11½
Ginger, Jam., fine ....per cwt.	100 0	..	240 0	100 0	..	240 0
Ord. to good ..... „	42 0	..	95 0	42 0	..	95 0
African ..... „	22 6	..	0 0	22 6	..	0 0
Bengal ..... „	21 0	..	22 0	21 0	..	22 0
Malabar ..... „	0 0	..	0 0	0 0	..	0 0
Cochin..... „	27 0	..	115 0	27 0	..	115 0
Pepper, Black, Malabar per lb.	0 5⅜	..	0 5¾	0 5⅜	..	0 5⅞
Singapore ..... „	0 5⅝	..	0 0	0 5⅝	..	0 0
White ..... „	0 7¼	..	0 0	0 7¼	..	0 0
Cayenne ..... „	0 9	..	1 5	0 9	..	1 5
Mace, 1st quality .... „	1 5	..	2 6	1 5	..	2 6
2nd and inferior .. „	1 2	..	1 4	1 2	..	1 4
Nutmegs, 78 to 60 lbs. „	2 10	..	3 10	2 10	..	3 10
90 80 „ „	2 5	..	2 9	2 5	..	2 9
132 95 „ „	2 1	..	2 4	2 1	..	2 4
Pimenta.....	0 4½	..	0 4¾	0 4½	..	0 4⅝

VARIOUS PRODUCTS.

Cochineal—						
Honduras, black .... per lb.	0 0	..	0 0	0 0	..	0 0
„ silver .... „	0 0	..	0 0	0 0	..	0 0
Mexican, black ..... „	1 8	..	0 0	1 8	..	0 0
„ silver ..... „	1 7	..	0 0	1 7	..	0 0
Tenerriffe, black..... „	1 8	..	2 1	1 8	..	2 1
„ silver..... „	1 8	..	1 10	1 8	..	1 10
Indigo, Finest Bengal	7 0	..	7 5	7 0	..	7 5
„ Guatemala Flores	6 9	..	7 0	6 9	..	7 0
Soap, Castile .....per cwt.	28 0	..	0 0	28 0	..	0 0
Soy, China .....per gall.	1 11	..	0 0	1 11	..	0 0
Terra Japonica—						
Gambier .....per cwt.	17 6	..	18 0	18 9	..	19 0
Free cubes ..... „	24 3	..	25 6	25 0	..	27 0
Cutch ..... „	19 0	..	34 0	18 0	..	34 0
Wax, Bees, English .. „	£0 0	..	£0 0	£0 0	..	£0 0
Jamaica.. „	5 10	..	7 5	5 5	..	7 5
East India „	5 15	..	6 10	5 15	..	6 10
Vegetable, Japan.. „	2 11	..	2 12	2 12	..	2 14
Wood, Dye, Bar..... per ton	4 5	..	4 10	4 5	..	4 10
Brazil ..... „	12 0	..	40 0	12 0	..	40 0
Cam..... „	15 0	..	25 0	20 0	..	27 0
Fustic, Cuba ..... „	0 0	..	0 0	0 0	..	0 0
Jamaica ..... „	5 0	..	5 5	4 15	..	5 5
Logwood, Campeachy „	7 0	..	8 10	7 0	..	8 10
Jamaica ..... „	6 10	..	6 15	4 10	..	5 5
Lima, first pile ..... „	11 0	..	12 0	10 10	..	12 0
Red Sandars ..... „	5 17/6	..	0 0	6 0	..	0 0



BANKRUPT.

FERRIS, JOHN ANDREW, 26 Buckingham Palace Road, Pimlico, and 1A Victoria Square, surgeon and chemist and druggist. August 23.

PARTNERSHIPS DISSOLVED.

CORBETT & Co., Plaskynaston Chemical Works, Cefn, manufacturing chemists. February 5. (Edward Corbett, jun., and Stanley John William Ollivant Black.) Debts by E. Corbett, jun.

KIRTON & SON, Savill Street, Hull, chemists and druggists. June 30. (Joseph Bishop Kirton and Christopher Henry Kirton) Debts by C. H. Kirton.

SCOTCH SEQUESTRATION.

DEANS, JOHN KERR, Stirling, dentist and chemist, September 9, at 2 o'clock, Dowell's Rooms, 18 George Street, Edinburgh. Claims by December 31.

LIQUIDATIONS.

BRIERLEY, JOHN, 38 and 42 Copy Nook, Blackburn, manufacturing and dispensing chemist, grocer, and provision dealer, Italian warehouseman, and pale ale brewer. August 16.

DOBSON, GEORGE (trading as "Merryweather & Dobson"), 18 High Street, Leicester, chemist and druggist. September 2.

EDWARDS, CHARLES RICHARD, 5 West Place, Fareham, dispensing and family chemist. August 18.

EVANS, WILLIAM DENNETT, and CANT, HEMINGTON (under firm of "Evans, Cant & Co."), Eastern Chemical Works, Marsh Gate Lane, Stratford, aniline dye manufacturers and patentees. August 8.

HOLLINGS, EDMUND (late in co-partnership as the "National Non-Intoxicating Ale Company," Hanover Street, Cheltenham), 8 Winchcomb Street, and Field Lodge, College Road, Cheltenham, botanic chemist. August 5.



68/267. *Dissenter*.—You appear to have a moral ground for complaint, but we much doubt whether you have any legal remedy. It would be impossible, however, for us to give you any advice worth having without a much more intimate knowledge of the circumstances. It may be of use to others, though not much to you, to say that no partnership ought to be entered into without a clear and definite agreement in writing as to the rights and limitations of each, not only during the partnership, but in the event of its determination. Unless your late partner has infringed some written covenant we do not see what ground of action you can have. At any rate, before doing so consult some respectable solicitor.

Oil of Kermes.—Some time ago we were asked for a formula for this preparation, but were unable to supply it. Recently we have learnt that syrup of red poppies is sold as oil of kermes in the West of England.

201/63.—*Formulæ Wanted.*—Jeremies Sedative, prepared by Savory & Moore.

IS IT DESIRABLE TO MAKE OUR EXAMINATIONS MORE STRINGENT?

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

DEAR SIR,—I wish each member of the trade could be brought carefully to consider and then practically to record his verdict (as was done with the proposed poison regulations about eleven years ago) upon the following questions—questions which, judging from recent debates in the Pharmaceutical Council and from other utterances elsewhere, may, if we keep not eyes and ears open, be settled for us before we can express an opinion. Is it desirable, either in the interests of the public or of chemists themselves, that the door of future admission to the trade should be made narrower—that the minor examination should be made more stringent, raised nearly or altogether to the standard of the existing major, or that the minor should be retained as an examination for assistants, while nothing short of the major shall confer the right to "keep open shop for the retailing of poisons and dispensing of physicians' prescriptions?" Decidedly undesirable, answer I, and that for the following reasons. I would not oppose the enforcement of the preliminary before apprenticeship, nor a curriculum to render the minor a substantial test. But, ideal pharmacy apart, is it not a fact that the present minor *bonâ fide* passed is, as Dr. Grecuhow asserts, a sufficient basis for the safe and satisfactory conduct of chemists' businesses as we actually find them? Is it not also a fact that assistants who have passed the major find that but slight help in obtaining situations with first-class houses? These changes are recommended on the ground of limiting competition, but would they have that result? There are chemists carrying on mixed trades in villages of 1,400 or 2,000 inhabitants. Is it not requiring too much of their sons that they must pass the major before they can succeed their sires? Who would choose to pass that examination with the fixed certainty of never having more to do with pure pharmacy than would fall to their lot in said localities? Yet it is desirable that there should be sufficiently qualified chemists in such places—men who can not only sell ordinary drugs, but also dispense the occasional prescription. Wipe out these smaller men, and you would still find it impossible to limit, by law, the sale of common drugs, and these smaller chemists would be replaced throughout the length and breadth of the land by a brood of grocer-druggists, who would keep everything they legally could keep, and would prove more serious competitors to legitimate chemists than all the co-operative stores have done or are likely to do. As to the proposal that the minor examination should be the assistants' qualification—what is its logical outcome, and what might too speedily be its actual realisation? Why, clearly that no one below the grade of a minor could either retail poisons or dispense—that our apprentices, however trustworthy, must be relegated wholly to secondary work, and that we, masters, more than half of us, must be kept perpetual prisoners, as our businesses are not large enough to admit of our keeping a registered assistant.

In the prospect of such a "shooting Niagara" I must exclaim "Save us from our friends."

J. T.

Tinct. Opii Aquos.—Can anyone supply *Manager* (201/67) with a formula for this?

202/70. *Charles G.*—Two formulæ for liquid dentifrices were published in our 1879 volume, at pages 310 and 360 respectively.

201/46. *J. A. W.*—The best information we have about **Menthol** is in J. R. James's paper on "New Remedies," published at page 146 of our last volume. It is given internally, but we do not know in what doses. It is highly recommended as an external application in facial neuralgia and the like, in the form of a paint made thus:—Menthol, 6 grains; rectified spirit, 6 minims; clove oil, 1 drachm.

A formula for **Lemon Tincture for Aerated Waters** will be found at page 136 of the last volume of this journal. It is from a book published by Barrett, Sons & Co.:—Choose lemons with bright, thick skins, as green as possible, providing the fruit be sound and well developed. Peel them so as to reject as much of the white as possible. The peel from a dozen lemons will weigh about 9 oz. Add the peel of 6 dozen to a gallon of spirit of wine 16° o.p., which may be made by diluting 3 quarts of 55° o.p. spirit with enough water to make one gallon *when cold*. Macerate for three days with occasional agitation, and allow it to clarify by settling.

202/27. *Viridis.*—A formula for **Composition Powder** could have been found at once by consulting the index to our last volume. We reproduce the one there given, which is that of Dr. Coffin, and is, we believe, the one generally sold:—Bayberries, 4 oz.; Canadian pine and ginger, of each 2 oz.; cayenne and cloves, of each 2 drachms. Or, bayberries, Canadian pine, and ginger, of each 4 oz.; golden seal and sassafras, of each 2 oz.; cayenne and cloves, of each ½ oz.

200/4. *J. W.*—**Hudson's Soap Extract.**—Hager has analysed this preparation, and the result of his investigation was printed in this journal only so long ago as June, 1879. It gives, of course, the chemical composition, not a working formula; but the latter can easily be found by calculating the amount of water required to convert the anhydrous sodium carbonate to crystals, and calculating the remainder of the water as belonging to the soap. The following is Hager's report:—Hudson's "Soap Extract" is a mixture of crystallised soda and soda soap, containing water (soap, 14·3; anhydrous soda, 30; and water, 55).

202/37. *W. T. B.*—Tome's "Dental Surgery" is a standard book on the subject.

EPILEPSY.—A. A. Sellers gives the following information in the *New York Sun*:—"If the epileptic sufferer will carry with him a piece of common black silk, big enough to cover the face, and, whenever he feels the fits coming on, will cover his face with it, he will find it a sure cure. This recipe was given to my father by an old Frenchman, my mother having been subject to fits for many years. She never had one afterward. When she felt one coming on she would place the silk over her face. I do not know the virtue of it, but do know from experience that it does the work."

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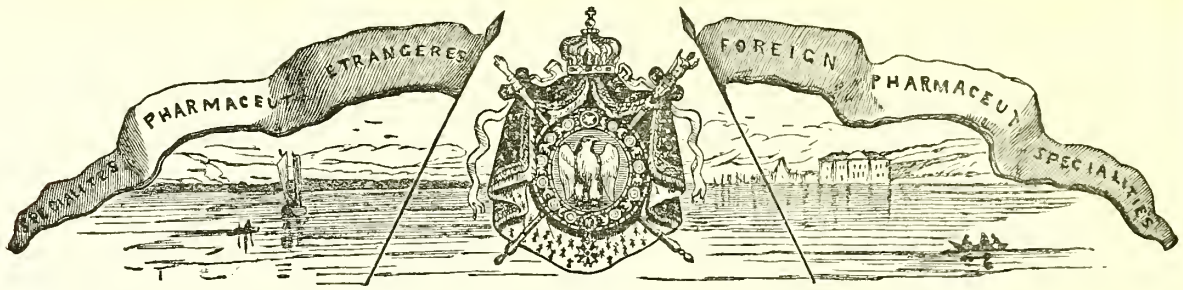
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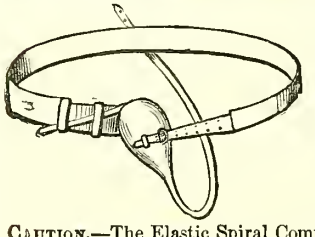
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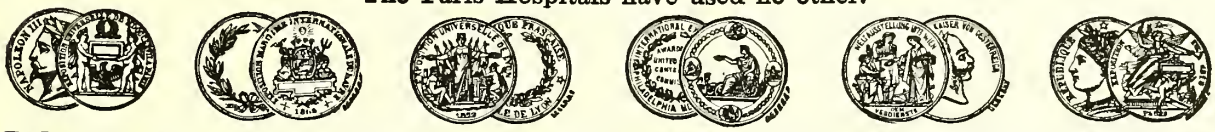
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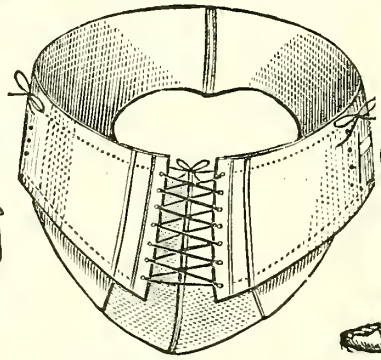
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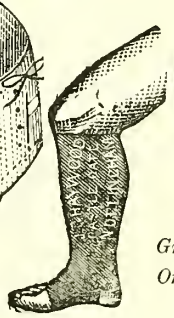
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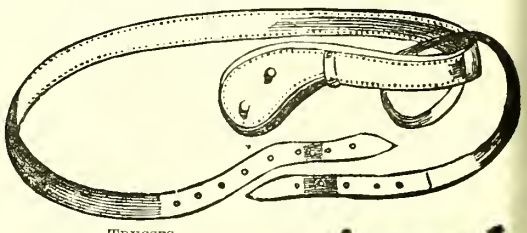
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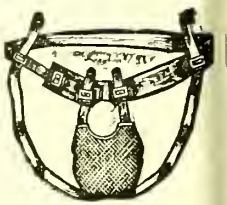


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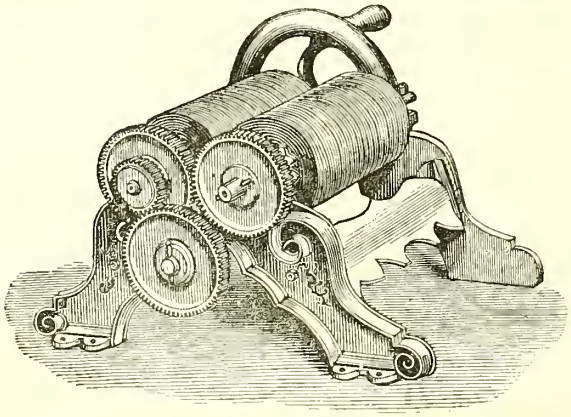
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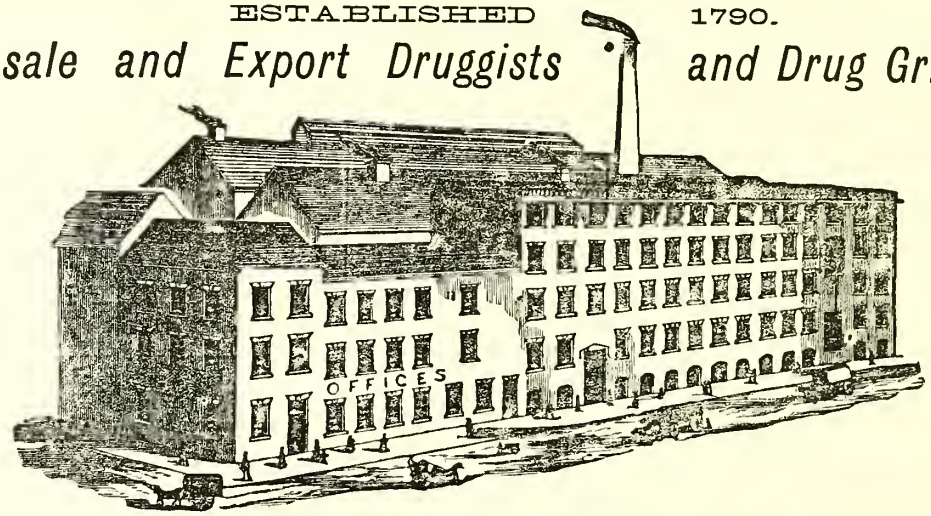
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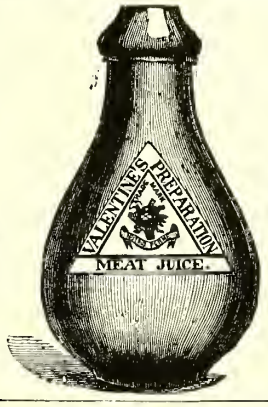
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DOSE— 2 to 4 grains.

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DOSE— 3 j to 3ij.

May be prescribed with most substances compatible with Acids. In 4 oz., 8 oz., and 16 oz. Bottles, and in Bulk.

MESSRS. BULLOCK & CO. beg to direct attention to a paper on "Medicinal Pepsine and Artificial Digestion," in the *Practitioner* for March, 1880, by G. F. DOWDESWELL, Esq., B.A. (Cantab), F.C.S., F.L.S., &c. Upwards of 200 experiments made by the Author proved the great superiority of BULLOCK'S PEPSINA PORCI and ACID GLYCERINE OF PEPSINE over every other Pepsine or Preparation of Pepsine, English, French, German, or American, and confirmed the equally favourable reports of Dr. PAVY (1863), Professor TUSON (1870), and the late Professor GARROD (1878), as to the pre-eminent digestive value of Bullock's Pepsina Porci.

PEPSINE WINE, Bottles, 3/, 5/6, and 10/6. | PEPSINE PILLS, Containing 2, 3, or 4 grains. | PEPSINE LOZENGES, Boxes, 3/ and 5/6. | PEPSINE AND CHARCOAL LOZENGES, Boxes, 2/6 and 4/6.

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CAUSTIC SODA, MURIATE and SULPHATE of POTASH,

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Carefully purified from Arsenic, Copper, Silver, Tellurium, Selenium, and all contaminations. Dose: 3 j. diluted.

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Bark minus woody fibre. Dose: 10 to 30 drops.

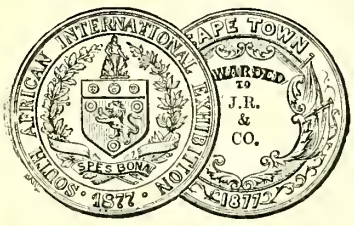
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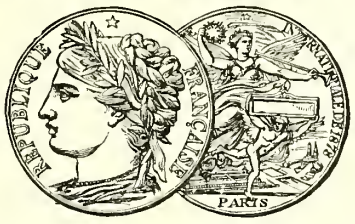
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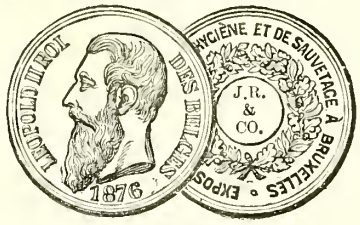
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FREE PHOSPHORUS, in Simple and Compound Forms, since introduced by us ten years ago, has been prescribed by some of the most eminent Medical Men in Europe, America, and the Colonies, and has been found marvellously effective in Neuralgia, Diseases of the Brain, Nerve, and Muscles, Indigestion, Depression, Loss of Power and Memory, Consumption, and Paralysis; in fact, never has a medicine in previous history been employed with SUCH SIGNAL SUCCESS for so many painful diseases.

Phosphorus, in combination with Nux Vomica, has been employed most successfnlly in India and China as a substitute for Opium, being a powerful tonic, and, at the same time, a sedative, without the banefnl effects of Opium.

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Phosph. pur. gr. 1-20th *in each pill.*

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Phosph. pur. gr. 1-30th *in each pill.*

No. 214.
Phosph. pur. gr. 1-50th *in each pill.*

No. 500.
Phosph. pur. gr. 1-100th *in each pill.*

No. 216.
Phosph. pur. gr. 1-50th
Ferrum Redact. ,, iv. } *In each pill.*

No. 217.
Phosph. pur. gr. 1-30th
Ferrum Redact. ,, iij. } *In each pill.*

No. 220.
Phosph. pur. gr. 1-100th
Ext. Nuc. Vom. Alc. gr. ½ } *In each pill.*

No. 501.
Phosph. pur. gr. 1-50th
Ext. Nuc. Vom. Alc. gr. ½ } *In each pill.*

No. 502.
Phosph. pur. gr. 1-30th
Ext. Nuc. Vom. Alc. gr. ½ } *In each pill.*

The above forms are neatly put up in Bottles, containing three, six, and twelve dozen pills in each.

WHOLESALE PRICES, **18s**, **27s.**, and **42s.** per dozen bottles. RETAIL PRICES, **2s. 6d.**, **3s. 6d.**, and **5s.** each bottle.

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Phosph. pur. gr. 1-30th
Zinci Valer. . ,, j. } *In each pill.*

No. 504.
Phosph. pur. gr. 1-50th
Zinci Valer. . ,, j.
Ferri Sulph. . ,, j. } *In each pill.*

No. 515.
Phosph. pur. gr. 1-50th
Zinci Valer. . ,, j. } *In each pill.*

The above forms are neatly put up in Bottles, containing three, six, and twelve dozen pills in each.

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Ferrum Redact. ,, iij.
Quiniæ Sulph. ,, ss. } *In each pill.*

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Phosph. pur. gr. 1-50th
Ferrum Redact. ,, iij.
Quiniæ Sulph. ,, ss.
Strychniæ. . ,, 1-50th } *In each pill.*

No. 514.
Phosph. pur. gr. 1-30th
Morphiæ Mur. ,, 1-10th
Zinci Valer. . ,, j. } *In each pill.*

No. 516.
Phosph. pur. gr. 1-30th
Aloïn . . ,, ⅛
Ext. Nuc. Vom. Alc. ,, ½ } *In each pill.*

No. 517.
Phosph. pur. gr. 1-30th
Quiniæ Sulph. ,, ½
Ext. Nuc. Vom. Alc. ,, ¼
Aloïn . . ,, ⅛ } *In each pill.*

No. 518.
Phosph. pur. gr. 1-50th
Ext. Nuc. Vom. Alc. ,, ½
Ext. Aloes Aquos ,, ½ } *In each pill.*

The above forms are neatly put up in Bottles, containing three, six, and twelve dozen pills in each.

WHOLESALE PRICES, **24s.**, **36s.**, and **60s.** per dozen bottles. RETAIL PRICES, **3s.**, **4s. 6d.**, and **7s.** each bottle.

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Phosphorus pur. . . . . . gr. 1-50th
Strychniæ . . . . . ,, 1-100th
Ext. Cannabis Ind. . . . . ,, 1-8th } *In each pill.*

No. 505.
Phosphorus pur. . . . . . gr. 1-50th
Zinci Valer. . . . . ,, j.
Ferri Sulph. . . . . ,, j.
Quiniæ Sulph. . . . . ,, ss. } *In each pill.*

The above forms are neatly put up in Bottles, containing three, six, and twelve dozen pills in each.

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Phosph. pur. gr. 1-50th
Quiniæ Sulph. ,, j. } *In each pill.*

No. 215.
Phosph. pur. gr. 1-30th
Quiniæ Sulph. ,, j. } *In each pill.*

No. 221.
Phosph. pur. gr. 1-50th
Ex. Nuc. Vom. Alc. ,, ½
Quiniæ Sulph. ,, j. } *In each pill.*

No. 430.
Phosph. pur. gr. 1-30th
Quiniæ Sulph. ,, j.
Ferri Sulph. ,, j.
Ex. Nuc. Vom. Alc. ,, ½ } *In each pill.*

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SPECIAL NOTICE.—The Prices of Pills containing Quinine fluctuate according to the variation in the price of that article.

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DISINFECTING, PRESERVING, &c.

Resorcinum puriss Medicinale "Andeer."

Manufactured by
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of Ludwigshafen a/ Rhine,
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N.B.—We guarantee our Chloroform prepared from METHYLATED SPIRIT *to be* PURE CHLOROFORM, *answering all the tests of the British Pharmacopœia.*

CHLORIC ETHER.

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Fluid Extracts, Concentrated Infusions, and all Pharmacopœial Preparations.

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White Gutta Percha for Stopping Teeth, in 6d. and 1s. Boxes.

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CHLORODYNE.

THE ORIGINAL AND ONLY GENUINE.

IMPORTANT CAUTIONS

From Lord Chancellor SELBORNE, Vice-Chancellor Sir W. PAGE WOOD, and the LORDS JUSTICES OF APPEAL.

VICE-CHANCELLOR SIR W. PAGE WOOD, by whom the suit in Chancery was first heard, stated in his judgment that 'Dr. J. Collis Browne was undoubtedly the Inventor of Chlorodyne, that the whole story of the Defendant Freeman was as deliberately untrue as the falsehood he had deposed to with reference to the use of his Chlorodyne in the Hospital.'

The VICE-CHANCELLOR also stated, 'that Chlorodyne was a fanciful name, and had application been made sooner, the Court would have given Dr. Browne protection.'

LORD CHANCELLOR SELBORNE coincided with the judgment of the Vice-Chancellor upon this point, and stated 'that had application been made at a proper time and place, the Court would have found means to restrain the Defendant from misrepresenting the decision of the Vice-Chancellor.'

LORD JUSTICE JAMES, on appeal, stated in his judgment, 'that the Defendant Freeman had made a deliberate misrepresentation of the decision of Vice-Chancellor Wood.'

It was proved in Court, on affidavit by Mrs. Forbes, of Paris, that the testimonial published in the *Times*, November 14th 1865, speaking of the great efficacy of Chlorodyne in Cholera, referred to Dr. J. Collis Browne's Chlorodyne, and that she never used any other, that she had written to the Defendant Freeman to that effect; notwithstanding which notice the Defendant publishes the said testimonial as referring to his medicine.

The Editor of the *Medical Times*, in his report on Chlorodyne, January 13th, 1866, gives information that the Chlorodyne referred to was the medicine introduced by a retired Army Medical Officer, which was Dr. J. Collis Browne; still this is published by the Defendant as testimony to his medicine.

Numerous affidavits from eminent Physicians and others were produced in Court, stating that Dr. J. Collis Browne was the inventor of Chlorodyne, and that when prescribing they mean no other.

The Defendant himself publishes that his compound is in effect and composition quite different to any other preparation nevertheless he assumes the name, testimonials, &c., of Chlorodyne.

Technicalities in law prevent that protection which the public should justly have against such a course of conduct. It is now incumbent on all who purchase Chlorodyne to see that the name, 'Dr. J. Collis Browne's Chlorodyne,' is engraved on the Government Stamp, as it is not sold otherwise. All other compounds under the name of Chlorodyne are spurious. All attempts at analysis have failed; hence the statement that the constituents of Chlorodyne are known is a misrepresentation.

From SYMES & Co., Pharmaceutical Chemists, Medical Hall, Simla,
January 5, 1880.

To J. T. DAVENPORT, Esq., 33 Great Russell Street, Bloomsbury, London.

DEAR SIR,—Have the goodness to furnish us with your best quotations for Dr. J. Collis Browne's Chlorodyne, as, being large buyers, we would much prefer doing business with you direct than through the wholesale houses. We embrace this opportunity of congratulating you upon the wide-spread reputation this justly-esteemed medicine has earned for itself, not only in Hindostan, but all over the East. As a remedy of general utility, we much question whether a better is imported into the country, and we shall be glad to hear of its finding a place in every Anglo-Indian home. The other brands, we are happy to say, are now relegated to the native bazaars, and, judging from their sale, we fancy their sojourn there will be but evanescent. We could multiply instances *ad infinitum* of the extraordinary efficacy of Dr. Collis Browne's Chlorodyne in Diarrhœa and Dysentery, Spasms, Cramps, Neuralgia, the Vomiting of Pregnancy, and as a general sedative, that have occurred under our personal observation during many years. In Choleraic Diarrhœa, and even in the more terrible forms of Cholera itself, we have witnessed its surprisingly controlling power. We have never used any other form of this medicine than Collis Browne's, from a firm conviction that it is decidedly the best, and also from a sense of duty we owe to the profession and the public, as we are of opinion that the substitution of any other than Collis Browne's is a deliberate breach of faith on the part of the chemist to prescriber and patient alike.

We are, Sir, faithfully yours,
SYMES & Co.,
Members of the Pharm. Society of Great Britain,
His Excellency the Viceroy's Chemists.

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Which is no Quack Imposture, but a genuine, truly useful, *bonâ-fide* medicine, and the quickest and most effectual cure for Neuralgia, Tic-Douloureux, Rheumatic-Neuralgia, Spasmodic Neuralgia, Hysterical Neuralgia, Earache, Brow Ague, Faceache, Toothache, Sciatica, Nervous Disorders, Nervousness, Nervous Headache, Nervous Cough, Nervous Irritability, Nervous Trembling, Nervous Debility, and Nerve Pains, after having been used with great success for sixteen years in his private practice, is now before the public. It has speedily relieved these diseases when specifics (?) vaunted as cures have been unsuccessful, and several teeth have been previously extracted, and that without the least benefit. This valuable Mixture relieves pain and spasms, strengthens and calms the nervous system, restores sleep, and quiets the brain when distnrbed by anxiety, worry, and overwork. To raise the spirits, to give life and cheerfulness, to steady the muscles and limbs, in persons weak, depressed, and trembling from excessive drinkiug, it surpasses all other medicines. Being a Stomachic, no medicine excels it as a remedy for Indigestion, and its attending evils.

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BLOOD MIXTURE,
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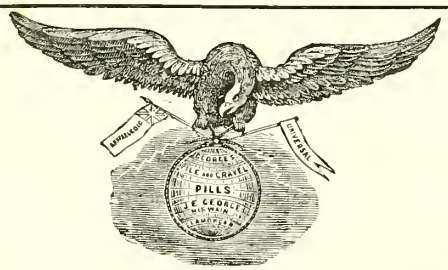
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Worthy of trade notice. Reliable, and rapidly increasing in public acceptance.

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They Purify the Blood thoroughly, and are a mild but effectual aperient. They cure Indigestion, Headache, Constipation, Rheumatism, Dyspepsia, Gout, &c.

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R. HAMPSON prepares the Pills of the Pharmacopœia, and a great variety of Pills from convenient formulæ; also Pills from private formulæ. The Pills are made of the best ingredients, and being QUICKLY and perfectly diffusible, invariably give satisfaction. A Price Current, with formulæ and sample, post free. Supplied direct or through the Wholesale Houses. Special quotations for large quantities.

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1882.

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Between thirty and forty years ago a Medicine was introduced to the public, and suffering humanity was invited to try the same.

The Proprietor knew from experience that success was certain, but the human breast is so imbued with prejudice, that it forms one of the strongest barriers to break down and the greatest enemy to overcome before any headway can be made towards the mansion of success. Truth has often proved itself to be "stranger than fiction," and it is a fact as solid as truth that

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have now become one of the leading Patent Medicines of the present day. From north to south, and from east to west, they are to be found in the homes of the rich and the poor. All classes of society use them, and they are by thousands declared to be

WORTH A GUINEA A BOX.

For a Weak Stomach, Impaired Digestion, and all Disorders of the Liver, they act like "**MAGIC**," and a few doses will be found to work wonders on the most important organs in the human machine. They strengthen the whole muscular system, restore the long-lost complexion, bring back the keen edge of appetite, and arouse into action, with the **ROSE-BUD** of health, the whole physical energy of the human frame. These are "**FACTS**" admitted by thousands, embracing all classes of Society, and one of the best guarantees to the Nervous and Debilitated is, **BEECHAM'S PILLS** have the **LARGEST SALE** of any Patent Medicine in England.

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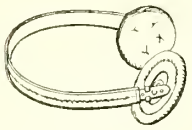


FIG. 1. Patent Single.

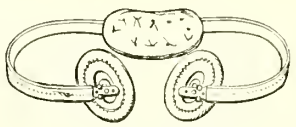


FIG. 2. Patent Double.

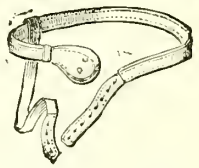


FIG. 3. Common Single

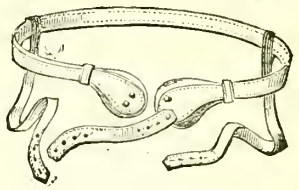


FIG. 4. Common Double.

NETT PRICES, 1880.

Patent Self-Adjusting Trusses, Basil and Chamois, per doz (Fig. 1), single					£1	10	0	Common Circular Trusses, Basil and Chamois ... per doz. (Fig. 3), single					£0	18	0
Ditto	ditto	Basil and Moleskin ...	"	"	"	1	18	0	Ditto	ditto	Basil and Moleskin ...	"	"	1	4	0
Ditto	ditto	Roan and Skiver, Silk Sewn	"	"	"	2	8	0	Ditto	ditto	Basil and Chamois ...	" (Fig. 4), double		1	10	0
Ditto	ditto	Basil and Chamois ...	"	(Fig. 2), double		3	0	0	Ditto	ditto	Basil and Moleskin ...	"	"	1	18	0
Ditto	ditto	Basil and Moleskin ...	"	"	"	3	16	0	Scrotal Trusses, Basil and Chamois or Moleskin ...			...	each, single	0	3	0
Ditto	ditto	Roan and Skiver, Silk Sewn	"	"	"	4	16	0	Ditto		ditto	...	" double	0	7	0

N.B.—Customers are invited to order direct from S. O. & Co., or to advise their Agents to do so, as the GENUINE *article cannot be obtained elsewhere, and none are of their make unless Stamped with Registered Trade Mark on Springs and Plates.*

RELIEF FROM COUGH IN TEN MINUTES.

HAYMAN'S BALSAM OF HOREHOUND



Is the most certain and **SPEEDY REMEDY** for all **DISORDERS** of the **CHEST** and **LUNGS**. In Asthma and Consumption, Bronchitis, Coughs, Influenza, Difficulty of Breathing, Spitting Blood, Whooping Cough, Hoarseness, Loss of Voice, &c., this Balsam gives instantaneous relief, and, a properly persevered with, scarcely ever fails to effect a rapid cure. It has now been tried for many years, has an established reputation, and many thousands have been benefited by its use.

IT HAS A MOST PLEASANT TASTE.

IMPORTANT TESTIMONIAL.—"AMPORT FIRS, ANDOVER, MAY 29, 1869.—Sir, I have for some years had your Balsam of Horehound for Mrs. B. Webster, and intended writing to tell you how much benefit she has derived. She was considered consumptive, but the Balsam has quite restored her, and she is now quite strong. I have recommended you dozens of customers, and all have been pleased with it.—I am, yours, &c., H. B. WEBSTER. Mr. HAYMAN, Chemist."

Mr. HORROX, Chemist, Mildenhall, writes to say :—"One of my customers says your Balsam is worth sixpence a drop."

IN THE NURSERY it is invaluable, as children are fond of it and take it eagerly. Immediately it is taken coughing ceases, restlessness is gone, and refreshing sleep ensues. No lady who has once tried it would ever afterwards be without it.

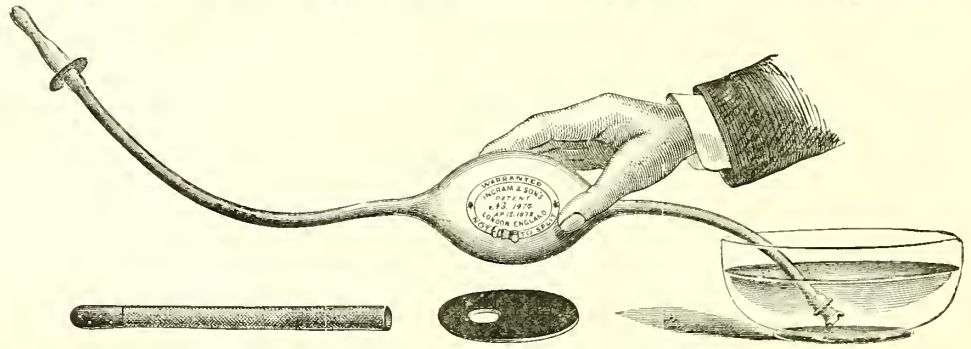
Prepared only by **A. HAYMAN, Chemist, Neath**; and sold by all Chemists. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per Bottle.

WHOLESALE AGENTS.—W. Sutton & Co.; Barclay & Sons; Newbery & Sons, &c., London; Felton, Grimwade & Co., Melbourne; Elliott Brothers, Sydney and Brisbane, Australia; Kempthorne, Prosser & Co., Auckland and Dunedin, New Zealand; Smith, Stanistreet & Co., Calcutta.

INGRAM'S IMPROVED ENEMA APPARATUS

By Royal Letters Patent.

MADE IN ONE CONTINUOUS PIECE.



WARRANTED NOT TO SPLIT.

The following are the advantages we claim for our invention :—

1st.—A complete Enema and Syringe Apparatus, without any metallic connections or wire fastenings whatever, thereby avoiding the possibility of leakage.

2nd.—Specially prepared to resist the heat in tropical countries.

3rd.—A perfect apparatus: will not split, become hard, or sticky.

Patented in America, No. 212,939, *March 4th,* 1879, *and in France, No.* 126,909, *October* 11*th,* 1878.

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CHEMISTS, DRUGGISTS, SURGICAL INSTRUMENT MAKERS and DRUGGISTS' SUNDRIESMEN.

CHEMISTS who have not received Show Cards for "MOLLER'S COD LIVER OIL" this Season will be supplied either by enclosure or, in the United Kingdom, carriage paid (when necessary), upon application to London Office—521 Oxford Street, W.C.

MOLLER'S COD LIVER OIL CAN BE OBTAINED THROUGH ANY WHOLESALE HOUSE.

ESTABLISHED 1873.

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TYNE VALE CHEMICAL WORKS, FORTH BANKS, AND SKINNER BURN ROAD,

NEWCASTLE-UPON-TYNE,

MAKER OF

ETHER { PURE, for Medicinal Purposes.
METH., for Ice Making, &c., &c.
METH., Trebly Refined, for Photographic Collodion, &c.

Quotations on application.

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SOLE AGENTS FOR THE BLAYDON COLOUR COMPANY, LIM.,

MANUFACTURERS OF

Blanc Fixe (Baryta White).

Chloride of Barium. Sulphide of Barium.
Hydrate of Barium. Nitrate of Barium, &c.

BRAND. (BC) BRAND.

ORIGINAL PLAISTER WORKS.

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MEDICAL PLAISTERS

Of all kinds (Best Quality) for Home and Export.

Porous Plaisters—Yards or Boxes.

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PRICES ON APPLICATION.

HENRY'S CALCINED MAGNESIA

Continues to be prepared with scrupulous care in the greatest chemical purity, by

Messrs. THOMAS & WILLIAM HENRY, 11 East Street, St. Peter's, Manchester,

And is sold in bottles, authenticated by a Government Stamp bearing their Names and Trade Mark, "Henry's Calcined Magnesia."

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TOWLE'S CHLORODYNE

The Original Preparation, as approved by the Medical Profession on account of its known composition and uniform strength.

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LIQ. CHLORODYNII,

As originally introduced by A. P. Towle, and free from stamp duty for dispensing.

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In 1, 2, and 4 lb. Bottles, at 3s. per lb., and 6d. and 1s. Boxes. Foiled, Lined and neatly got up for the counter, 4s. 6d. and 9s. per doz.

A. P. TOWLE, Chlorodyne Manufacturer,

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Bills with name on application with instructions for forwarding.

The Lancet says:—"This instrument is very complete. It is portable, it is cheap, and it acts promptly."
Medical Examiner says:—"It is not, perhaps going too far to say that such a contrivance as Allen & Son's Portable Turkish Bath should find a place in every well-regulated household."
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ALSO INVENTORS OF

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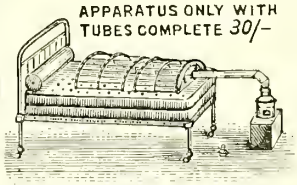
NO SAUCEPANS REQUIRED.

Recommended by *The Lancet*, *Queen*, *Sanitary Record*, *&c.*, *&c.*
For use over Fire, 7/6; with Stand and Lamp, 15/.
INHALERS, 5/ and 6/ each, &c.
Illustrated Catalogues for Three Stamps.

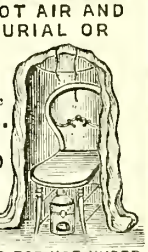
J. ALLEN & SON'S PORTABLE TURKISH BATH.

CAN BE USED FOR HOT AIR ONLY, HOT AIR AND VAPOUR COMBINED, OR FOR A MERCURIAL OR ANY MEDICATED BATH.

APPARATUS ONLY WITH TUBES COMPLETE 30/-



FOR RHEUMATISM, GOUT, ECZEMA, LUMBAGO, SCIATICA, AND SKIN, LIVER, AND KIDNEY AFFECTIONS.



APPARATUS FOR BED IN BOX WITH PAIR OF WICKER FRAMES 45.s
FULL PARTICULARS WITH MEDICAL AND PRESS OPINIONS POST FREE.

APPARATUS FOR USE UNDER CHAIR, WITH BEST CLOAK TINNED IRON SUPPORTS IN BOX 50/s

21 & 23, MARYLEBONE LANE, OXFORD STREET, LONDON.

The British Medical Journal says:—"Possesses in an eminent degree the very desirable qualities of efficiency, portability, and cheapness, thus meeting every requirement."
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For Best Composition, Acid Proof,

MORTARS & PESTLES,

ALL SIZES.

COMPOSITION PILL TILES AND FUNNELS.
EARTHENWARE—COVERED POTS, } ALL SIZES.
" GALLIPOTS, }
" UNIONS.
" MEDICINE SPOONS.
" INVALIDS' FEEDERS.
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" BED PANS.
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Size.	Height.	Flint Glass. N.M.	Flint Glass. W.M.	Blue Glass. N.M.	Blue Glass. W.M.	
16 ounce	8 inches	16/6	18 6	20/	22/	per dozen.
20 "	9 "	17/6	20/	21/	23/	"
32 ounce	10½ inches	20/	22/	22/	26/6	per dozen.
42 "	11 "	22/	25/6	26/6	30/	"

Prices of other Shop Bottles, &c., on application. Sample Bottle sent on receipt of 1s. 7d. *in stamps.* Facsimile Sheet Labels, in various styles, sent on receipt of two stamps. *Amongst others, the following parties have recently been supplied with these Bottles:—*

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Bray, W., Pollokshields.
Brevis, John, West Hartlepool.
B ocq, P. De Le, Jersey.
Brunton, W. W., South Kensington, London.
Carruthers & Allan, Dumfries.
Charlesworth & Co., Manchester.
Cullen & Co., South Norwood, London.
Cummings Bros., Dundee.
Day, J., Savile Town, Dewsbury.
Donald, Dr., Paisley.
Edwards, G., Stockport Road, Manchester.
Forwell, H., Helensburgh.
Fraser, John, Helmsdale.
Gardner, A. W., Auckland, New Zealand.
Gibson, Robert, Hulme, Manchester.
Henry, J. P., Belfast.
Irvine, Dr., Pitlochry.
Keith, John, Leeds.
Kinninmont, A., Glasgow.
Ludlaw, Walter, Denny.
Lonsdale, A. W., Rangoon, Burmah.
Macfarlan, A. Y., Edinburgh.
Mackie, Keith, Paisley.
MacVea, A., Whithorn.
Mason, W. D., Grimsby.
Maston, G., Hartlepool.
Mungall, Dr., Glasgow.
M'Caul, J. & G., Londonderry.
M'Jannet, Dr., Lennoxtown.
M'Kirdy, J., Rothesay.
M'Rae, Alexander, Edinburgh.
Noble, A., Galashiels.
New Medical Hall, Campbeltown.
Pattison, H., Cobham, Shrewsbury.
Pettigrew, J. W., Lenzie.
Quiray, W. D., Belfast.
Reid, Dr., Aberfeldy.
Rand, E., Wagga Wagga, New South Wales
Senior, Harold, Norwood Line, London S.E
Sibthorpe, S., Wolverhampton.
Smith, Albert, Ilfracombe.
Taafe, H., Londonderry.
Taylor, W. G., Hungerford.
Todd, Joe, Carlisle.
Waterhouse, A., Dewsbury.
Western Medical Hall, Glasgow.
Wills & Wootton, Wyminster College, Wimp, Lewis, Chislehurst. [London.
Yarrow, Dr. H., Govan.

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GLASS BOTTLE MANUFACTURERS,

DRUGGISTS' SUNDRYMEN, AND GENERAL EXPORTERS.

For Quality and Variety of Bottles we obtained Prize Medal at the Paris Exhibition, 1878.

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PRIZE MEDALS, INTERNATIONAL EXHIBITIONS.



LONDON, 1862.


PARIS, 1875.


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DRUGGISTS' BOTTLES, for Powders, Pills, Acids, Citrate of Magnesia, and other products supplied by Chemical Manufacturers and Wholesale Druggists.

CASTOR OIL, COD LIVER OIL, AND HAIR OIL BOTTLES of various shapes, plain and fancy, with or without stoppers.

CARBOYS for Vitriol, &c., of all sizes, with or without Baskets.

DISPENSING & OTHER BOTTLES, both green and white, for the use of Chemists, Surgeons, and Manufacturers of Patent Medicines, &c.

PERFUME BOTTLES, in different sizes and shapes, suitable for both the Wholesale and Retail Trade.

MINERAL WATER BOTTLES for all kinds of Aërated Drinks, of every shape and colour, suitable either for Corks, or the various Patent Stoppers now in use.

WINE AND SPIRIT BOTTLES, of various shapes and sizes, and in suitable colours. **ALE** and **PORTER** Bottles in the dark green colour now so much preferred, both for Corks and Barrett & Elers' Screw Stoppers.

CONFECTIONERS' BOTTLES, with or without stoppers, comprising Drops, Barley Sugars, Jellies, Rock, Jam, and Marmalade Jars.

PICKLE, SAUCE, VINEGAR, and Wholesale Oilmen's Bottles in great variety, with or without Stoppers.

We ask special attention to our **GLASS MEASURES.** They are made of the *very best* quality of glass, and the accuracy of the graduations is verified by Professor Redwood. *PRICES (including stamping in accordance with the new Act):—*

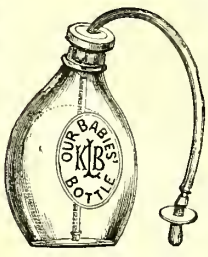
1 dr.	2 dr.	½	1	2	3	4	6	8	10	12	16	20	32	40	oz.
12/-	13/6	11/6	12/6	13/6	15/6	17/-	20/-	21/-	23/-	25/-	28/-	31/-	38/-	42/-	per dozen.

DISCOUNT ACCORDING TO QUANTITY ORDERED.

We beg to solicit Orders for our New Feeders,

"OUR BABIES' BOTTLES,"

AT THE FOLLOWING PRICES—



GREEN BOTTLES, with boxwood top corks and white fittings, 38*s.* per gross.

Ditto, with brown or black fittings, 44*s.* per gross.

WHITE BOTTLES, with boxwood top corks and white fittings, 40*s.* per gross.

Ditto, with brown or black fittings, 46*s.* per gross.

Above are put one dozen in a wooden box, or can be supplied, each bottle in a cardboard box, neatly labelled, at 6*s.* per gross extra.

Spare Bottles—Green, 13*s.* per gross; White, 15*s.* per gross.

WHITE FLINT BOTTLES, with earthenware caps and white fittings, with tube and bottle brushes complete, each bottle in a cardboard box, 78*s.* per gross.

Ditto, with brown or black fittings, 84*s.* per gross.

Ditto, with white fittings, bottle of cement for attaching cork strips inside the cap, extra teat, and boxwood cork, 108*s.* per gross.

Ditto, with brown or black fittings, 120*s.* per gross.

These Feeders are fitted with an arrangement in the rubber tubing for ascertaining the flow of milk, which will be found very useful to all who have charge of infants.



Terms and Discounts forwarded on receipt of application stating quantity required.
Large Buyers liberally treated with.

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WORKS:—THORNHILL LEES AND CONISBORO', YORKSHIRE.

Illustrated Price Lists and Samples forwarded on Application.

A CERTAIN CURE FOR DEAFNESS.

By this valuable "Specific" hundreds have been cured of this distressing malady. For Cold in the Head with Noises in the Ear, it is most efficacious. The highest testimonials are enclosed, with directions for use with each bottle.

OSBORNE'S GOLDEN DROPS



REGISTERED TRADE MARK

OSBORNE'S GOLDEN DROPS

FOR DEAFNESS.

The highest Testimonials are enclosed, with directions for use with each bottle.

Extract from "*Brief.*"—"GOLDEN DROPS FOR DEAFNESS.—E. M. Osborne has produced a valuable specific for this distressing complaint. We have tested its efficacy, and can, with confidence, recommend it to the public as an excellent remedy. It is perfectly harmless, and the directions for use are plain and simple. It is secured by a registered trade mark, '*Human Ear*,' by which the genuine article may be recognised."

TESTIMONIALS.

"EDGBASTON, MAY 4, 1877.—Sir,—My niece, who came to stay at my house, was suffering from Deafness and difficulty of breathing, owing to weakness of the tousils caused by Quinsy. She tried your wonderful 'Specific,' and after applying it a little more than a week her hearing and breathing were quite restored. I am glad to communicate this as the medium of personal thanks and for the good of others,—Yours truly, C. L."

"CLAPHAM, SEPT. 5, 1877.—Sir,—Be so good as to send me six bottles of your 'Cure for Deafness,' and yon will oblige. I am much better. Shall I go on with it? Be so good as to let me know. It has done me more good than physicians to whom I have paid twenty guineas; they cannot do me any good.—Yours, &c., J. P."

"CRYSTAL PALACE ROAD, EAST DULWICH, JUNE 10, 1878.—Sir,—During the last few weeks my little girl has been quite deaf, and suffering considerable pain in her left ear. I was recommended to use your 'Golden Drops for Deafness,' and I am delighted to say that, after applying them three times, they brought away two large secretions of foul matter. The child can now hear distinctly the faintest sounds, and is free from pain. I send you this testimonial unasked, in the hope that its publication may increase the sale of your truly valuable 'Golden Drops.'—Yours respectfully, I. H. S. N.B.—If you will send me some testimonial sheets I will distribute them amongst my friends."

Sold by all Wholesale and Retail Chemists, price 1s. 1½d., 2s., 2s. 9d., and 5s. 6d.; or free by post for 1½d. extra from

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CHEMISTS' AND DRUGGISTS'

SHOP BOTTLES AND JARS

WITH BURNT-IN LABELS.

Narrow-mouthed and Wide-mouthed Bottles, well Stoppered.
Capped and Tube-stoppered Oil Bottles.
Syrup Bottles, with Plug Stoppers of Dark Blue or White Opaque Glass.
Lozenge Jars with Cut Glass Knobs.
Cut Perfume Bottles, Round, Oval, and Square.
Shop Jars of Best Porcelain, thoroughly Grease Proof.

Labels Indestructible and of Elegant Appearance.

PRICES ON APPLICATION.

A Large Variety of Samples on Show at

H. POTHS & CO.,

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50 LEADENHALL STREET, LONDON, E.C.

Two Shops completely fitted with these Bottles and Jars may, by permission of the owners, be inspected at Messrs. Twinberrow & Son, 80 Wigmore Street, W.; and in an entirely different style at Mr. M. Büchner's, 124 High Street, Whitechapel.

LLOYD RAYNER'S £75 CHEMIST'S SHOP

FITTED COMPLETE WITH ALL NEW GOODS,

INCLUDING

GLASS SHOW CASES, SHOP BOTTLES, JARS, &c.

If for Export, suitable for any climate, including Packing Cases, and delivered to any of the London Docks, free, £85.

The above Fittings are suitable for a Shop 14 feet long by 12 feet wide.

WHOLESALE AND RETAIL DRUGGIST'S, SURGEON'S, AND DENTIST'S VALUER.

An Extensive Stock of Chemist's, Surgeon's, Dentist's, Grocer's and other Trade Fixtures, Office Fittings, Utensils, &c.

ALL KINDS OF FIXTURES BOUGHT OR TAKEN IN EXCHANGE.

SHOW ROOMS AND OFFICES—

333 KINGSLAND ROAD.

FACTORIES—

2 DOWNHAM ROAD, KINGSLAND;

AND

WHITMORE ROAD, HOXTON, LONDON, N.



FREEMAN'S CHLORODYNE



THE ORIGINAL AND ONLY TRUE.

Discovered and Invented by RICHARD FREEMAN in 1844.

It is one of those preparations so well known as having something in its composition which defies the imitator, and makes it an invaluable remedy. No other remedy known can be exhibited with so much confidence as a SEDATIVE, an ANTI-SPASMODIC, an ASTRINGENT, an ANODYNE, or DIAPHORETIC.

In its composition and effect it bears no resemblance to any of the many formulæ published, but has curative and chemical properties peculiarly its own, nor is there any analytical test for it. It has been found by the Profession and large numbers of the public to succeed after all imitations had failed, and maintains its unaltered position as the only reliable CHLORODYNE.

TESTIMONIALS.

Mr. R. FREEMAN, HEAD-QUARTER STAFF, CABUL, *May 31st*, 1880.

Dear Sir,—It is with much pleasure that I am able to state that your Chlorodyne has been of special service to me in alleviating the wearisome spasms of Asthma, which is here existent in an aggravated form. Many of my patients now come and beg me to give them that medicine which always relieves them, and which I need hardly say is your Chlorodyne. Yours faithfully,

CHARLES W. OWEN, L.R.C.P., Lon., M.R.C.S., Eng.
The Divisional Head Quarter Staff and Civil Surgeon, Cabul.

THE "TIMES," AUGUST 13th, 1877.

From our own Correspondent with the Russian Army. OKOUM, *July 25th*, 1877.

The want of sanitary arrangements in the Russian camp was dreadful, and had we remained there a few weeks longer dysentery and typhoid fever would have played more havoc in our ranks than the bombs of the Turks. I myself acquired an unenviable reputation as a doctor, owing to my being provided with a small bottle of CHLORODYNE, with which I effected miraculous cures.

IMPORTANT CAUTION.—Four Chancery Suits terminated in favour of FREEMAN'S ORIGINAL CHLORODYNE and against Collis Browne and Davenport. Lord Chancellor Selbourne, Lord Justice James, and Lord Justice Mellish condemned their proceedings, and decreed them to pay all costs. Reports of the suits in "Times," January 12 and July 13, 1864, and April 29 and July 24, 1873, and "British Medical Journal," May 3, 1873.

Sold in Bottles, 1*s.* 1½*d.*; 2 oz., 2*s.* 9*d.*; 4 oz., 4*s.* 6*d.*; 8 oz., 9*s.*; half pints, 11*s.*; and pints, 20*s.* each; and for dispensing only in bottles, fl. 8 oz. 8*s.*, and fl. 20 oz. 18*s.* (in weight one pound and a half). A liberal discount allowed. Special quotations given for quantities for Hospitals, Workhouses, Infirmaries, and other Public Medical Institutions. Full directions in various languages.

SOLE MANUFACTURER—

RICHARD FREEMAN, PHARMACIST, 70 KENNINGTON PARK ROAD, LONDON, S.E.

TWO SPECIAL FIRST AWARDS, SYDNEY EXHIBITION, 1879-1880.
FIRST AWARDS, WITH GOLD MEDAL FOR ESPECIAL EXCELLENCE MELBOURNE EXHIBITION, 1880-1881.

THOMAS WHIFFEN, BATTERSEA, LONDON,

MANUFACTURER OF

QUININE SULPHATE.

White and Unbleached, and all other important Salts of Quinine; as also of

QUINIDINE, CINCHONIDINE, AND CINCHONINE.

QUINETUM. The Alkaloids of India Cinchona Succirubra Bark.

QUINETUM SULPHATES.

LIQUID EXTRACT OF CINCHONA BARK.

SALICINE. The active principle of Willow Bark.

STRYCHNINE (HULLE'S).

The Advertiser is the PROPRIETOR and INVENTOR of this well-known Brand.

THE "OTTO" SILENT GAS ENGINE.

NO BOILER OR STEAM NEEDED.

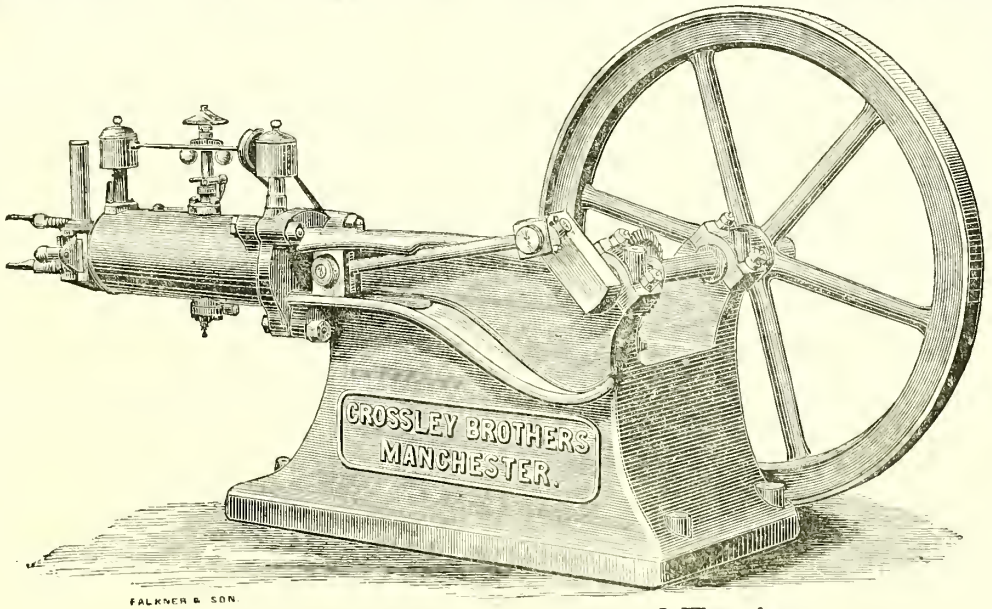
HIGHEST AWARDS AT SYDNEY AND MELBOURNE EXHIBITIONS.

Nearly 5,000 Cttos now at Work.

Particularly suitable for Aerated Water Work, Drug Grinding, Hoisting, &c.

Please write for Special List of Engines doing this Work, and Testimonials.

LONDON HOUSE:
24 Poultry.
LIVERPOOL STORE ROOMS:
Basement, Corn Exchange.



FALKNER & SON.

1 H.P. and 16 H.P. type of Engine.

STARTS AT A MOMENT'S NOTICE.

Nearly 5,000 Ottos now at Work.

ADVANTAGES AS
Compared with Steam.

No Heat. | No Danger.
No Dirt. | No Chimney.
No Dust. | No Smoke.
No Extra Insurance.
No Glands to Pack.
No Safety Valves to Watch.
Always Ready.
Occupies little Space.
Requires no constant attendance.
May be run Night and Day.

GLASGOW HOUSE:
193 Sauchiehall Street.
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SIZES										
Nominal Horse Power	½	1	2	3½	6	8	12	16	} OFFERED.
Maximum Indicated Horse Power...	1.1	2.26	3.96	5.9	11.57	14.7	23.1	36 to 40	

CROSSLEY BROTHERS,

LIMITED,

CALEDONIAN FOUNDRY, MANCHESTER.

AGENCIES WITH STOCK AT ALL PRINCIPAL COLONIAL PORTS.

KOUMISS.

AWARD OF MERIT, International Medical and Sanitary Exhibition, South Kensington, 1881.

TRADE MARK, REGISTERED.

PREPARED BY THE

AYLESBURY DAIRY COMPANY, LIM.

NOTICE.—**KOUMISS** has hitherto been very costly, in fact, the price has prohibited its use except to the wealthy and in very extreme cases. THE AYLESBURY DAIRY COMPANY having all the necessary conveniences for its preparation—space, a resident analytical chemist, an unlimited supply of pure milk (more than 3,000 gallons are daily passed through the dairy), and a service of delivery covering all the Western Districts of London, are now able to supply this most valuable beverage at less than one-half the price hitherto charged.

May be obtained from Chemists in nearly all Provincial Towns.

Chemists will be furnished with full particulars as to Prices and Terms on application to the Secretary,

AYLESBURY DAIRY COMPANY, LIM.,

31 ST. PETERSBURGH PLACE,

BAYSWATER, LONDON, W.

ZOEDONE.

JOHN FREEMAN & CO.,

CENTRAL TRADE AGENCY,

71 QUEEN STREET, E.C.

Delivered free in London; to be paid for on or before delivery; or free on rail for country. Country orders to be accompanied with remittance.

PRICE:—6 dozen Pints, 27s. per case; 5 cases or upwards. 26s. per case, allowing 5s. 6d. for empty cases and bottles,

BOTTLED ALES OF EVERY DESCRIPTION,

WITH

BARRETT & ELERS' NEW SCREW STOPPER & BOTTLE.

Trade Supplied. Price List on application.

CARLOWITZ,

MAX GREGER & CO, LIMITED,

Price 3s. 2d. per flagon,

And no charge on flagon if replaced within 14 days. Delivered free within a radius of 6 miles.

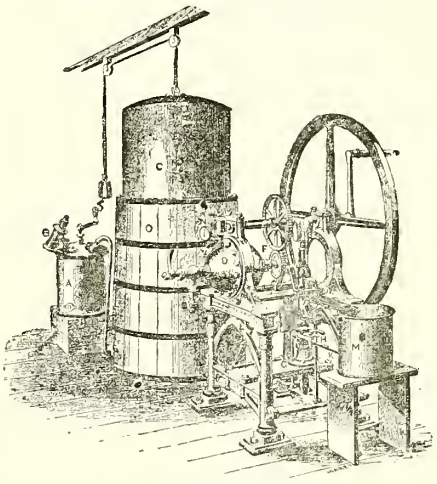
GOLD MEDAL,

PARIS, 1878.

HAYWARD TYLER & Co 21

BRAMAH'S

CONTINUOUS PROCESS. MACHINE.



611.—Bramah's Continuous Process Machine.
MANUFACTURED BY HAYWARD TYLER & Co.

PRICES AND PARTICULARS

No 1	—Machine with 2½ gallon condenser and 2 inch pump, to produce dozen a day	300 to 400	£71	10	0	packing	£4 0 0
No 2	—Machine to produce	200 to 250	£66	0	0	for	£3 15 0
No 3	— "	150 to 180	"	£60	10	0	export £3 5 0
No. 4	— "	80 to 100	"	£49	10	0	" £2 15 0
No. 5	"	40	"	£28	0	0	" £1 15 0

The Machines may be driven by hand or steam power; if fast and loose pulleys for the latter purpose are fixed on the shaft, the price is £2 10s. extra.

It is extremely difficult to give an accurate estimate of the quantity which each machine will turn out, owing to the difference of practice in different places. In hot countries it is impossible to produce as much as in cooler climates, owing to the expansion of the gas. The figures which we give here and in other places are based upon the actual practice of our customers.

84 & 85 UPPER WHITECROSS STREET, LONDON.

HIGHEST AWARD,

MELBOURNE, 1881.

AWARDED THE CERTIFICATE OF MERIT AT THE SANITARY EXHIBITION OF GREAT BRITAIN.

A SIX DOZEN CASE, which may be assorted, to any Railway Station for 36s., returned Empty allowed 18s.

A Liberal Discount to the Trade, who should send for Sample Case before ordering elsewhere.



Telegram from Melbourne Exhibition, May 7, 1881.

To Messrs. Samuel Gulliver & Co., Aylesbury.

"TWO FIRST-CLASS AWARDS for your Exhibit, being the Highest Honours obtainable for Mineral Waters. Special reference being made to the Good Quality."

Also Two Second Awards and Honourable Mention—Five Honours in all.

LAMPLOUGH'S EFFERVESCING **PYRETIC SALINE.**

LAMPLOUGH'S TRADE MARK

HAVE IT IN YOUR HOUSES AND TRAVELS, USING NO OTHER SALINE; it gives instant relief in Headaches, Sea or Bilious Sickness, and quickly cures the worst form of Eruptive or Skin Complaints. The various diseases arising from Constipation, the Liver, or Blood Impurities, Inoculation, the results of breathing air infected with **Fevers, Measles,** or **Smallpox,** are frequently prevented and certainly cured by its use.

The sale of these Saline Salts having greatly increased during the past few years, I beg most cordially to thank those who sell and recommend the same, and also to inform intending dealers that they will find Messrs. BARCLAY, EDWARDS, MAW, NEWBERY, SANGER, SUTTON, and the Wholesale Houses generally, ready to supply their wants. This Advertisement is found needful in consequence of the trouble, cost, and inconvenience in the keeping and collection of numerous small accounts. *Note.*—The Name, Trade Mark, Labels, Wrappers, &c., are all Registered and Entered at Stationers' Hall.

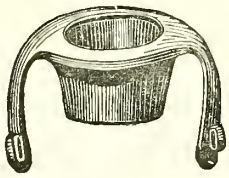
LAMPLOUGH'S TRADE MARK

113 HOLBORN HILL, LONDON, E.C.

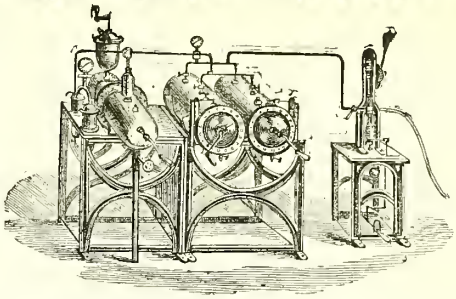
PECIAL NOTICE.—Medical Gentlemen having fever cases, and desirous of trying the Saline, can have a single bottle at wholesale prices by sending their cards.

SODA-WATER MACHINERY.

PATENT NOZZLE

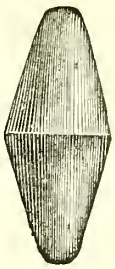


FITS ANY BOTTLE.



SODA WATER MACHINE COMPLETE, WITH RACK.

CONE STOPPER.



BALL STOPPER.

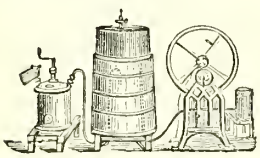


DAVENPORT'S NOZZLE AND STOPPER is the best Patent for utilising old Bottles, and converting them into Patents. No Corks or Wire, and saving entire cost in one season. The New Nickel-plated Nozzle makes this the most attractive Patent in use. Trial allowed. Prices lowered. Send for Samples. New Bottles ready fitted for use now supplied. **Catalogues of Soda-Water Machines, Ice-Making Machines, Engines, Boilers, Copper Cylinders, Syphons, Seltzogenes, Filters, &c., and all accessories to the Soda-Water Trade.**

AGENTS FOR HAYWARD TYLER & CO.'S SODA-WATER MACHINERY.
" " BARRETT & ELERS' Patent Stoppers in Lamont's Bottles.
Illustrated Catalogues, of sixty-four pages, post free to all parts of the World.

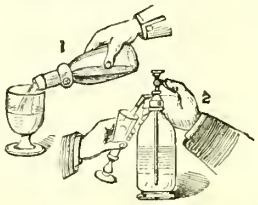
DAVENPORT & CO., Soda-Water Machinists and General Machinery Agents,
99N HIGH HOLBORN, LONDON.

SODA WATER MACHINERY
BY
BARNETT & FOSTER,
23T FORSTON STREET, SHEPHERDESS WALK, LONDON, N.



Prize Medals—London, 1862, 1873, 1874; Paris, 1867, 1878; Vienna, Philadelphia, Cape, &c. Highest Award, Sydney, 1879-80.

Our Machines are universally adopted throughout the world for the manufacture of all kinds of Aërated Drinks, whether in bottles, syphons, or counter fountains. There are in England alone over 1 500 factories where our Machinery is in use. They are the simp'est, safest, and cheapest for the purpose, and produce a highly-charged gaseous water free from metallic or foreign contamination.



All our Machines have a Gasometer, and it forms a most important necessity where purity of product is required, as in this the gas is expanded and purified ; it also removes the possibility of explosion, and avoids the necessity of complication—these we consider of greater importance than the saving of a few inches of floor space.

Our valuable Book of Recipes and Instructions accompanies every Machine, and the most unskilled can at once produce Waters of the highest class.

Sole Agents for Codd's Patent Bottle, Fig. 1. Sole Manufacturer of the "London-made" Syphon, Fig 2.

PATENTEES OF THE IMPROVED CORKING MACHINE FOR CHAMPAGNE BOTTLES.
ILLUSTRATED CATALOGUE FORWARDED FREE.



GOLD MEDAL,

SODA WATER MACHINERY.

MONDOLLOT'S PATENT.

The chief features of which are the entire suppression of the Gasometer and all its disadvantages, economy of materials, and saving of labour.

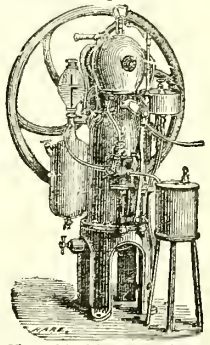
Notwithstanding the short time this Machine has been put before the Public, over 400 Machines are already in use all over the World.



PARIS, 1878.

No Gasometer.
No danger of Explosion.
No skilled labour required.
No previous knowledge necessary.

Bottle and Syphon Filling Stand, Syphons, Syrup Pump, and all necessary Appliances. A New and xhaustive Catalogue is now in the press, and will be sent, when ready, on application to



No. 1 Machine, complete. Prices from £25.

The Cheapest Machine.
The Most Compact.
The Most Simple to Work.
Being Entirely Automatical.

"When explained it is simplicity itself. . . . . The fact of the economy of skilled labour and the saving of materials being the chief and most important points."
—The Mineral Water Trade Review and Guardian.

"There is no ordinary generator or gasometer in connection with this machine, and therein lies the secret of its advantage over the ordinary English Machines."
—The Mineral Water Trade Recorder and Advocate.

H. FAVARGER (Late MONDOLLOT & CO., Limited,
75 TURNMILL STREET, CLERKENWELL, E.C., **LONDON.**

SODA WATER PLANTS.

For the convenience of parties about to commence in the trade, and small manufacturers, we have made arrangements with Messrs. Galloway to supply a smaller kind of their well-known Soda Water Machinery, complete with or without Gas Holder and Generator, and Bottling Rack, to fill any kind of patent bottle, or for cork bottles only. The Machines are made to work either by hand or power, and are adapted for any climate. Intending purchasers should compare prices and workmanship with those of other makers.

No. 1 PLANT, complete, makes 400 dozen per day, and is fitted with $1\frac{3}{4}$-in. Pump and 2-gallon Cylinder, and also includes Gasometer and Generator, **Price £52 10s.** No extras.

No. 2 PLANT, complete, makes 600 dozen per day, and is fitted with $2\frac{1}{4}$-in. Pump and 4-gallon Cylinder, and also includes Gasometer and Generator, **Price £63.** No extras.

A Bottling Rack, for filling either patent bottles or cork, is supplied at an extra cost of **£10 10s.**

Full Particulars and Descriptive Circular will be forwarded on Application. Factories fitted complete, and all accessories supplied. Instructions given.

ADDRESS TO THE SOLE AGENTS,

BRATBY & HINCHLIFFE, Pott Street, Ancoats, MANCHESTER.

Hunyadi János

CAUTION.—Circumstances which have come to the knowledge of Andreas Saxlehner, Buda Pest, Sole Proprietor of the Hunyadi János Spring, compel him to WARN the British Public against SPURIOUS IMITATIONS. To secure genuineness, purchasers should see that every bottle has on the LABEL the name of "THE APOLLINARIS COMPANY (LIMITED), London."

WILCOCKS' IMPROVED "ORIGINAL"

SODA WATER MACHINE

(HAND POWER),

To make 100 Dozen per Day of highly-charged Gaseous Water,

£22 : 10 : 0

This Machine is on the continuous-process Bramah principle, has a good size Lead Generator, Copper Gas Holder in oak tub, with internal pipes of block tin; Bramah principle Gun-metal Pump in a frame of iron, with Fly-wheel, Crank, and Handles. *Instead of the Gun-metal Cylinder or Condenser, with revolving Agitator and Toothed Gear-wheels*, we substitute in this Machine a large Copper Condenser of about four times the size, with our Apparatus fitted to the Copper Condenser. We find the Waters are more highly charged with Carbonic Acid Gas by this method than any other way of saturation, and they are perfectly free from metallic contamination. This Machine is also strongly recommended for filling Syphon Bottles, and, if driven by a Motor (either a Gas, Air, Steam, or Water) Engine, the product is about double.

Wilcocks' "Original" Soda Water Machine, to make 100 dozen per day by hand power, with Dial and Water Gauges, Lead Generator, and Copper Gasometer ... ... **£22 : 10 : 0**

Packed for Export in extra-strong Iron-bound Cross Battened Packing Case, **£3.**

"Middlesex" Lever Corking & Filling Machine, for Corked Bottles ... ... **£5 : 0 : 0**

Wilcocks' "Eclipse" Filling Machine, for filling the various *Patent* Internal Stopper Bottles **£4 : 10 : 0**

Wilcocks' Syphon Filling Machine, for filling Syphons ... ... **£4 : 10 : 0**

Packing Case for each Filling Machine, separately, **£1 5s.** each.
If all three in one Case, **£2.**

Printed Testimonials and Illustrated Price List on application.

N. G. WILCOCKS, BACK STREET, BATH.

NOVELTIES IN BOTTLES AND STOPPERS.



THE

GLASS, EBONITE, PORCELAIN, &c. DISC BOTTLE,

WITH NEW PATENT PURE RINGS,

SIMPLE, PERFECT, UNIQUE.

Likely to supersede all other Patent Bottles.

The Disc effectually covers the rubber when the bottle is filled.



These Bottles and Ebonite and Porcelain Discs can be supplied at a cheaper rate than the Prepared Glass, as No. 1.

THE SCREW STOPPER & BOTTLE,

For Ales, Porter, Cider, and Brewed Beer.

The Screw Stoppers can be attached to the necks of the Bottles by a band of wire and a small chain, if preferred; price about 3*s.* 6*d.* extra. *See Fig.* 4.

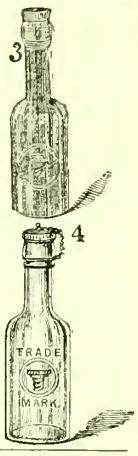
When bottling, the Stoppers must be wetted before screwing them in. Screw it gently but firmly home.

They should not be subjected to the action of any strong alkali, or great heat, and are not recommended for bottling spirits at present.

Essential and Indispensable for every Refreshment Room Proprietor, for every Hotel and Public-house, and for every Householder.

Our other, and well-known Stoppers, &c., still supplied as usual.

SAMPLES ON APPLICATION.



OUR ORIGINAL AND WELL-KNOWN STOPPERS HAVE NOW BEEN IN USE FOR YEARS BY UPWARDS OF 1,000



MINERAL WATER MANUFACTURERS AND OTHERS THROUGHOUT THE UNITED KINGDOM AND THE WORLD.

BARRETT & ELERS, 9 Dacre Street, Westminster, LONDON, S.W.

FOREIGN

Mineral Waters and Zoedone.

FREDERICKSHALL (5 Cases, 6*d.* per Case less), 24/6 Case, 30 bot.; 34/ Case, 60 ½-bot.

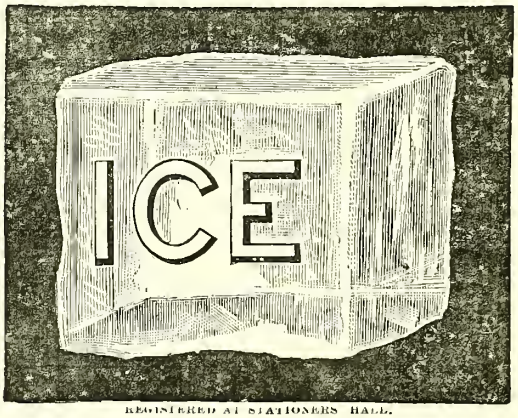
APOLLINARIS (10 Hprs.. 1/- and 1/6 less), 24/ Case, 50 bot.; 36.6 Hpr., 100 ½-bot. Hampers free.

HUNYADI JANOS (10 Cases 3/- and 5/- less), 30/- Case, 25 bts.; 50/- Case, 50 ½-bts.

SELTZER	...	...	...	11/- Hpr., 25 bts.
"	...	...	...	15/- Hpr., 50 ½-bts.
PULLNA	...	...	...	18/- Case, 20 bts.
"	...	...	...	30/- Case, 50 ½-bts.
VICHY...	...	...	...	31/- " 50 bts.
"	...	...	...	27/- " 50 ½-bts.
CARLSBAD ...		...	...	37/- " 50 bts.
KISSENGEN	...	...	...	42/6 " 50 "
SCHWALLBACH...		...	...	27/6 " 50 "
HOMBURG ...		...	...	37/6 " 50 "
WILDUNGEN	...	...	...	40/- " 50 "

CARLSBAD SALTS, ½-Bots., 20/ per doz.; ½-Bots., 40/- per doz.; Bot., 80/- per doz.

ZOEDONE, 5/- per doz.. 6-doz. Cases (if 5 Cases, 2*d.*, 10 Cases, 3*d.*, 20 Cases, 4*d.* per doz. less).



REGISTERED AT STATIONERS HALL.

Norway Block Ice.

ORIGINAL BLOCKS	1/9 per cwt.
1 cwt. to 2 cwts.	2/6 "
½ cwt. to 1 cwt.	½*d.* per lb.

Packing and Mats for Original Blocks free 3*d.* each allowed for Mats if returned.

Present Season's Ice specially fine and extra thick. Low quotations given for quantities taken from vessels while discharging.

PRINTED DIRECTIONS for STORING ICE sent free on application.

W. B. HARRISON,

IMPORTER OF ICE AND MINERAL WATERS,

6 Bridge Street, Sunderland.

"ABSOLUTELY PURE."

SEE ANALYSIS. Sent post free on application.

ELLIS'S



REGISTERED.

RUTHIN WATERS.

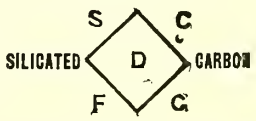
Soda, Potass, Seltzer, Lemonade, also Water without Alkali. For GOUT, Lithia Water, & Lithia & Potass Water.

CORKS BRANDED "R. ELLIS & SON, RUTHIN," and every label bears their Trade Mark. Sold everywhere, and wholesale of

R. ELLIS & SON, RUTHIN, NORTH WALES.

London Agents: W. BEST & SONS, Henrietta St., Cavendish Square.

SILICATED CARBON FILTERS.



Prize Medals—PARIS, 1867. HAVRE, 1869.

ADOPTED, IN PREFERENCE TO ALL OTHERS, by the Admiralty, and used in the General Post Office, the London and Provincial Hospitals, and many Public Establishments in various parts of the World.

SILICATED CARBON FILTER COMPANY,

CHURCH ROAD, BATTERSEA, LONDON.

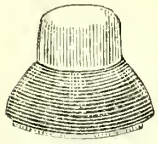
See two-page Advertisement in this No.

VALLET'S PATENT.

Fig 1.



Fig. 3.



New Stopper.

The Stoppers are made in six different sizes—Nos. 1, 2, 3, 4, 5, and 6. Nos. 4, 5, and 6 are most suitable for general use, the Bottles adapted to which having sufficient capacity in the mouth to allow a copious flow of the liquid, whilst Nos. 1, 2, and 3 are specially made for Bottles which have only a small mouth, thus retarding the flow of the liquid, and causing the evaporation of the carbonic acid gas before the Bottle can be emptied.

ROYALTY FREE.

☞ *All Communications to be addressed to*

L. VALLET, 49 Everton Road, LIVERPOOL.

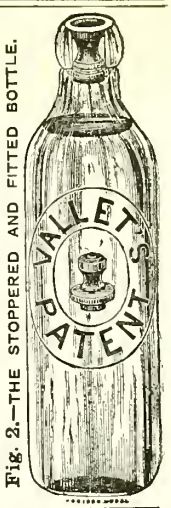
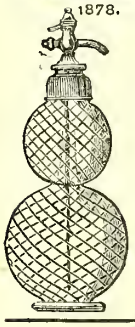


Fig. 2.—THE STOPPERED AND FITTED BOTTLE.

EUGENE GERAUT & CO.



1878.



SELTZOGENES.

First introduced by EUGENE GERAUT & Co. *in* 1853.

3-pint	Size,	Wire,	13/0;	Cane,	13/6
5-pint	,,	,,	18/0;	,,	19/0
8-pint	,,	,,	30/0;	,,	32/0

Strongly silver-plated top, 5/ each extra.

3-pint size, strongly silver-plated, richly decorated porcelain stands, 30/ each; 5-pint size, ditto, ditto, 38/ each; 8-pint size, ditto, ditto, 48/ each.

Our well-known Seltzogenes are improved yearly, and have already stood a public test of upwards of Twenty Years, and are acknowledged as THE VERY BEST.

POWDERS FOR THE ABOVE:—3-pint, per dozen boxes, 22/; 5-pint, ditto, 36/; 8-pint, ditto, 65/.



1873.

SYPHONS.

Clear or coloured glass, pure ENGLISH BLOCK TIN TOPS, with piston or cap.

22/6

per dozen, for quantities of not less than one gross.

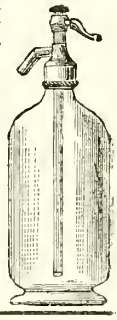
25/ per dozen, for less than one gross.

Packing in Cask, 5/ per gross.

The Name marked on the metals free of charge for quantities of not less than one gross.

The Name engraved with Trade Mark, from 1/6 to 2/6 per dozen extra.

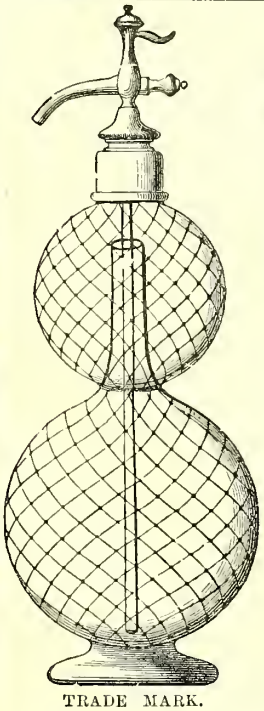




LARGE DISCOUNT.

1 & 2 Corporation Buildings, Farringdon Road, London, E.C.

FIRST ORDER of MERIT awarded to THESSIER-FÈVRE.



TRADE MARK.



REGISTERED.

CELEBRATED

D. FÈVRE SELTZOGÈNES & POWDERS

For immediate production of Soda Water, Eau de Vichy, Sparkling Lemonade, and Aerated Wines.

D. FÈVRE, 398 RUE ST. HONORÉ, PARIS,

Sole Inventor and Proprietor of the Article and Name "SELTZOGÈNE,"

THESSIER-FÈVRE, Son-in-Law, Manufacturer.

WHOLESALE PRICES.

Celebrated D. Fèvre Seltzogene.	3 pint, wire covered	12*s.* 0*d.* each.	Liberal discount allowed.
	3 pint, cane covered	12*s.* 6*d.* ,,	
	5 pint, wire covered	18*s.* 0*d.* ,,	
	5 pint, cane covered	19*s.* 0*d.* ,,	
	8 pint, wire covered	30*s.* 0*d.* ,,	
Case and Packing	12 Seltzogènes, 3 pint size ...	4*s.* 0*d.* net.	
,, ,, ...	12 ,, 5 ,, ...	5*s.* 8*d.* ,,	
,, ,, ...	6 ,, 8 ,, ...	9*s.* 8*d.* ,,	
Celebrated D. Fèvre Powders for the Seltzogènes.	3 pint, per doz. boxes of 12 charges,	24*s.* 0*d.*	Liberal discount allowed.
	5 ,, ,, ,,	36*s.* 0*d.*	
	8 ,, ,, ,,	60*s.* 0*d.*	
Pure Tartaric Acid and Bicarbonate of Soda in the highest state of perfection.	3 pint, per doz. boxes of 10 charges,	20*s.* 6*d.*	
	5 ,, ,, ,,	30*s.* 6*d.*	
	8 ,, ,, ,,	45*s.* 2*d.*	

EXTRA:—Taps, Tubes, Valves, Washers, &c.

DIRECTION FOR REPAIRS.

DRIP CATCHERS, FITTINGS, MEASURES, &c.

ALL MY GOODS ARE TESTED.

ILLUSTRATED CATALOGUE FORWARDED FREE.

PHOSPHODONE.

NON-ALCOHOLIC.

"A carefully-prepared beverage. . . . Pure, wholesome, and exhilarating. . . . The mineral matter held in solution is chiefly in the form of hypophosphites, of which each bottle contains about one grain."—Extract from Analytical Report by **F. P. PERKINS, Esq.**, Public Analyst to the City of Exeter.

PHOSPHODONE.

Extract from a Letter from Mr. TURNER, *the West Clifton Pharmacy, Clifton.*

(ENTIRELY UNSOLICITED.)

". . . . Will thank you to send me two gross of Phosphodone. . . . . I must congratulate you upon bringing out one of the finest drinks that was ever offered to the public, and for which you deserve the very ready sale which it has acquired. I cannot speak too highly of its medicinal virtues and its delicious taste; and all my customers who have once tried it have it again, and in every case speak in very eulogistic terms, and prefer it to all other similar beverages."

PHOSPHODONE

Is being regularly and constantly Shipped to the Colonies with the most perfectly satisfactory results, both for the excellent condition which it maintains throughout the passage, and for its very ready acceptance by persons of high position and influence.

PHOSPHODONE.

A Certificate of Merit has been awarded for Skinner's Mineral Waters by the Sanitary Institute of Great Britain, with the congratulations of the Right Honourable President, Earl Fortescue, who made the presentation.

G. J. SYMONS, F.R.S., Registrar.

Dr. H. C. BARTLETT, F.C.S., Dr. W. H. CORFIELD, M.B., F.C.S., } Judges of Mineral Waters Exhibition, 1880.

Professor F. de CHAUMONT, M.D., F.R.S., Chairman of Council.

PHOSPHODONE.

The Medical Profession and other correspondents may be furnished with the Alkaline Strength of the Mineral Waters, and other important information, as well as detailed Analyses, Medical Commendation, Press Notices, Testimonials, and Scientific Authorities. See Analyses by Professors Wanklyn, Heisch, &c.

PHOSPHODONE.

WHOLESALE LONDON AGENTS: Lynch & Co., Aldersgate Street; Barclay & Sons, 95 Farringdon Street; Ingram & Royle, 119 Queen Victoria Street; Edwards & Sons, 157 Queen Victoria Street; Sutton & Co., Bow Churchyard; Newbery & Sons, King Edward Street; Sanger & Sons, 150 Oxford Street.

PHOSPHODONE.

Supplied to Families by Chemists and Druggists throughout the United Kingdom.

PROPRIETOR: G. H. SKINNER, ST. KERRIAN WORKS, EXETER.

ZOEDONE

A DELICIOUS BEVERAGE.

The BRITISH MEDICAL JOURNAL says:—

"We can confidently recommend it to the attention of physicians and others who are occasionally at a loss what to direct their patients to take when parched by feverish thirst or depressed by exhausting ailments—notably in cases where alcoholic stimulants would be prejudicial. We feel that it would be found exceedingly useful in mitigating the discomfort ofttimes experienced by those suffering from the thirst, loss of appetite, and general *malaise* connected with the last stage of phthisis and chronic bronchitis. We would also, *from our observations and experience, advise its introduction into clubs, taverns, and places of public amusement,* where it would judiciously supersede vinous and alcoholic stimulants, seeing that it contains, as its name implies, life-giving ingredients in a form easily assimilated."

A BRAIN AND NERVE TONIC.

The LANCET says:—"ZOEDONE contains the soluble phosphates of lime, iron, soda, and potash, in medicinal quantities. Very efficient and pleasant."

The MEDICAL PRESS AND CIRCULAR says:—"Is commendable equally for the style in which it is put up and the delicate flavour which it possesses, and also on account of its special merits as a nervine tonic."

NON-ALCOHOLIC.

DR. NORMAN KERR says:—I rejoice to see the continued growing favour of the public for your elegant and fascinating beverage, which I prescribe very extensively as a medicinal tonic, as well as recommend constantly as a pleasant social drink.

DR. LLEWELYN THOMAS says:—To my taste ZOEDONE is by far the pleasantest and most agreeable of any of the aërated waters now before the public. It is peculiarly suited to those engaged in public speaking or singing, as from its tonic and stimulating properties it obviates any recourse to alcohol when feeling exhausted and thirsty. It is quite free from the mawkish, insipid taste of so many waters which require the addition of wine or spirits to make them palatable.

Customers supplied with Pamphlets, Circulars, and Cards for distribution, and Handsome Show Cards and Tablets for display.

ZOEDONE is admirably adapted for hot climates.

Application for Trade Terms should be accompanied by Business Card.

WHOLESALE AGENTS:—

LONDON—Allen & Hanburys.
" Barclay & Sons.
" W. Best & Sons.
" Burgoyne, Burbidges, Cyriax & Farries.
" Corbyn, Stacey & Co.
" Edwards & Sons.
" Evans, Lescher & Evans.
" Hearon, Squire & Francis.
" Ingram & Royle.
" Lynch & Co.
" S. Maw, Son & Thompson.
" F. Newbery & Sons.
" Probyn & Co.
" Savory & Moore.
" Wright, Layman & Umney.
ABERDEEN—W. Paterson & Sons.
BELFAST—Grattan & Co.
" Clarke & McMullen.
BERWICK—W. Graham Carr & Son.
BIRMINGHAM—Southall Bros. & Barclay.
" Phillip Harris & Co.
BOURNEMOUTH—Leverett & Frye.
BRADFORD—Harrison, Parkinson & Co.
BRISTOL—Ferris & Co.
CHELTENHAM—Joseph James.
CORK—W. & H. Goulding.
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COVENTRY—Wyleys & Co.
DOUGLAS—James Kissack.
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EDINBURGH—Duncan, Flockhart & Co.
" John Mackay & Co.
EXETER—Evans, Gadd & Co.
GLASGOW—The Glasgow Apothecaries' Co.
HULL—Lofthouse & Saltmer.
KENDAL—Severs & Bateson.
LANCASTER—W. H. Bagnall & Co.
LEEDS—Goodall, Backhouse & Co.
LEICESTER—John Richardson & Co.
LIVERPOOL—Clay, Dod & Case.
" Evans, Sons & Co.
" Raimes & Co.
" R. Sumner & Co.
" Clay & Abraham.
" Symes & Co.
MANCHESTER—H. G. Crews.
" James Smith & Co.
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NEWCASTLE-ON-TYNE—Brady & Martin.
" Mawson & Swan.
NORTHAMPTON—Frederick Kirby.
PLYMOUTH—Wills Son & Box.
SOUTHAMPTON—Randall, Sloper & Co.
YORK—Henry J. Pratt.
" Raimes & Co.

Retail Agents whose names are not on the published list should communicate with the Manager.

PATENTEE—DAVID JOHNSON, F.C.S. GENERAL MANAGER—JOHN MOSS, F.I.C., F.C.S

Manufacturers—THE ZOEDONE COMPANY (Lim.), Wrexham, North Wales.

LONDON OFFICE: 25 ABCHURCH LANE, E.C.
ZOEDONE BUREAU FOR FRANCE: 7 RUE ROYALE, PARIS. ZOEDONE BUREAU FOR BELGIUM: 2 RUE DE LOXUM, BRUSSELS.

NOTE.—ALL orders for the Company must be sent to Wrexham.

BOURNE WATER,

THE PUREST IN ENGLAND.

R. M. MILLS & CO.,

BOURNE, LINCOLNSHIRE,

Manufacture all kinds of AERATED WATERS from this Celebrated Artesian Spring.

DR. ANDERSON'S AERATED "TISSUE PHOSPHATE" TONIC WATER,

An Aerated Tonic Beverage, containing all the Mineral Aliments of Nutrition, and assisting Digestion in most marvellous degree.

Pure, Agreeable, Pleasing, and Invigorating Beverage, perfectly free from all Contamination.

Retail Price 4/6 and 8/ per doz. Sold by their Agents throughout England. Price, with Descriptive Pamphlet, upon application.

Wholesale London Agents—Messrs. INGRAM & ROYLE, 119 Queen Victoria St., E.C.

FOR SUMMER.

RASPBERRY
STRAWBERRY
LIME FRUIT
BLACK CURRANT
LEMON, ORANGE
JARCONELLE PEAR
PINE APPLE

In Bottles, 1/9,
Half Bottles, 1/-



FOR WINTER.

AROMATIC
BLACK CURRANT
GINGERETTE
GINGER LEMON
PEPPERMINT
CLOVE
WINTER PUNCH
LIME FRUIT
CORDIAL

In Bottles, 1/9,
Half Bottles, 1/-

By the simple addition of two table-spoonfuls of these Syrups to a tumblerful of hot or cold water, most wholesome and refreshing drinks are immediately prepared, as pleasant to the taste as they are invigorating to the system. For Gazogenes and the Syphon Soda Water Bottles they are admirably adapted. Put into a tumbler a large spoonful of any of the Syrups, and fill it up with the Gaseous Water. Largely used for flavouring Puddings, Jellies, Custards, and Blanc-Mange, and are specially suitable for the Sick Room, Pic-nics, Weddings, Christmas and Birthday Parties, &c., &c.

Sole Manufacturer—W. BECKETT, Heywood, MANCHESTER.

Wholesale Agents—Barclay & Sons; Sanger & Sons; Edwards & Sons; Sutton & Co., &c., &c.

FOREIGN MINERAL WATERS.

FOREIGN LIQUEURS.
FOREIGN WINES.
FOREIGN SPIRITS OF EVERY DESCRIPTION.
ANGOSTURA BITTERS.

APPLY TO

JAMES SMITH & COMPANY, IMPORTERS,

LIVERPOOL: 9 LORD STREET.

T. & F. J. TAYLOR'S

TRADE N&P MARK.

AËRATED WATERS,

Newport Pagnel.

ESTABLISHED 1835.

SODA, POTASH, SELTZER, AËRATED (without Alkali), and LITHIA WATERS, LEMONADE AND GINGER ALE.

Each Bottle is protected by a Label bearing the Signature of the Firm.

Purity and Excellence of the Water certified by Analysis by Professor Attfield, Ph.D., F.C.S.

Caution

W. A. ROSS, the Original Patentee and Maker of The Celebrated Belfast Ginger Ale, cautions the Public that the "GENUINE" can only be had at

Ross's Royal Ginger Ale
AND
Aërated Water Works Belfast.

Name on Cork, Capsule, and Label Registered.

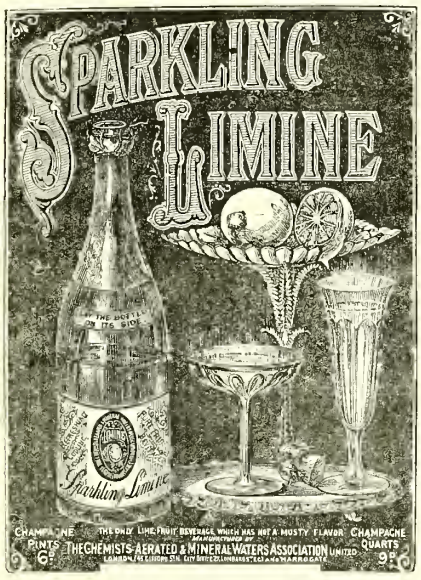
EXPORT ORDERS HAVE SPECIAL ATTENTION.

CHEMISTS' AERATED AND MINERAL WATERS ASSOCIATION
(LIMITED).

Manufacturers of MINERAL WATERS IN GENERAL, AND ALSO THE SPECIALITIES.

SPARKLING LIMINE.

A Delicious Lime Fruit Beverage, Free from a Musty Flavour.



Of Chemists, 5 6 and 8 6 per dozen.

Contains no Iron, no Phosphorus, but FRUIT AND VEGETABLE PRODUCTS ONLY.



Of Chemists, 5/6 and 8 6 per dozen.

SPARKLING RUBINE.

THE WATERS BEING OF FIRST QUALITY, A TRIAL IS SOLICITED.

Offices and Factories—45 Gifford Street, and 112 Pembroke Street, Caledonian Road, London; and Harrogate.

JEWSBURY & BROWN'S
MANCHESTER
MINERAL WATERS,

PURE SODA, SELTZER, POTASH, LITHIA, &c.,
LEMONADE,
GINGER ALE, AND QUININE TONIC.

Prepared and Bottled specially for Export, and warranted to keep well.

Manufactured with the utmost care and by improved machinery, these productions are recommended for **purity and excellence of quality** by many leading members of the Medical Profession, and have for many years had a preference by the public; the flavour of the **Lemonade and Ginger Ale** being procured from the **fresh Fruit and Finest Jamaica Ginger**, they may be relied upon as furnishing delicious and satisfactory beverages, either for general use or specially for invalids.

The **Soda Water** is absolutely free from any metallic impregnation, and being by improved machinery highly charged with Carbonic Acid Gas, and each bottle containing a definite and unvarying proportion of **Pure Carbonate of Soda**, J. & B. have every confidence in inviting a trial from those who have not already patronised them.

The **Seltzer, Potash, and Lithia Waters** are prepared with the utmost exactitude and the purest ingredients.

The **New Quinine Tonic** furnishes a pleasant form for the administration of a most valuable restorative, and is refreshing and agreeable.

Ginger Ale (Aromatic) of superior quality, and strongly recommended as a Non-Alcoholic and warm stimulant beverage.

N.B.—Every Bottle is protected by a distinctive Label, with Name and Trade Mark, and each Cork is branded.

Counter Bills and Analytical Reports, with Agents' Names and Addresses, supplied when requested.

A CERTIFICATE OF MERIT, for superiority of quality, was awarded to Jewsbury & Brown at the Exhibition of Sanitary Appliances, at Owens College, Manchester, on the occasion of the Meeting of the British Medical Association, August, 1877.

A CERTIFICATE OF MERIT awarded by the British Sanitary Institute of Great Britain, after a deferred **PRACTICAL TRIAL AND EXAMINATION**, July 4th, 1879.

JEWSBURY & BROWN, 44 Downing Street, 3 Grosvenor Street, and 113 Market Street, **MANCHESTER.**

J. H. CUFF'S
MINERAL WATERS,
Atkinson St., Deansgate,
MANCHESTER.

ESTABLISHED IN 1801.

SODA WATER (ordinary)	LEMONADE
SODA WATER B.P.	GINGER ALE
SELTZER WATER	GINGER BEER
LITHIA WATER	AERATED WATER without alkali
POTASS WATER	QUININE TONIC WATER
15 grs., 20 grs., & 30 grs. (each half-pint)	

LITHIA WITH POTASS WATER, &c., &c.,

Supplied in ordinary and half-sized bottles and in syphons.

Cuff's Waters are prepared expressly for a High-class Family Trade.

PRICES MOST REASONABLE.
LIST FREE ON APPLICATION.

CARRIAGE PAID ON FULL GOODS AND RETURNED EMPTIES.

Cuff's Waters give universal satisfaction to Dealers and Consumers alike. Try them!

NEW AND IMPORTANT DISCOVERY.

GINGER ALE
FROM PURE JAMAICA GINGER.

The difficulty of using Ginger in the Manufacture of "Ginger Ale," and at the same time having a CLEAR and SPARKLING DRINK, has, after much labour and expense, been thoroughly overcome by

Messrs. HARSTON & CO., of LEEDS,

And they are now able to place before the public a BRIGHT and SPARKLING DRINK, made purely from genuine Ginger Root.



THE ROYAL YORKSHIRE GINGER ALE,
From Pure Jamaica Ginger. Has wonderful nourishing properties.

THE ROYAL YORKSHIRE GINGER ALE,
From Pure Jamaica Ginger. Restores circulation; is warm and comforting.

THE ROYAL YORKSHIRE GINGER ALE
From Pure Jamaica Ginger. Is Non-intoxicating.

THE ROYAL YORKSHIRE GINGER ALE
From Pure Jamaica Ginger. For railway travelling, driving, or exposure to cold.

ABSOLUTELY PURE.
See Analysis by Drs. A. H HASSALL, M.D., and OTTO HEHNER, F.C.S.

HAY'S
SOLUBLE ESSENCE OF
JAMAICA GINGER
(GUARANTEED PURE AND FREE FROM CAPSICUM)

TRADE PRICE, 5s. per lb.; 12 lbs. and upwards, 4s. 6d.

Highly adapted for the manufacture of *Transparent Aërated Waters*, and for all *Dietetic, Medicinal*, and *Pharmaceutical* Purposes.

HONOURABLE MENTION,
INTERNATIONAL FOOD EXHIBITION,
AGRICULTURAL HALL, LONDON,
OCTOBER, 1880.

TESTIMONIALS.

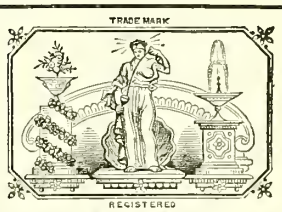
"9 Trinity Square, London, S.E.

"Dear Sir,—I think you should make it generally known that your Essence, in water, is the very best vehicle possible for Cod Liver Oil. It conceals its flavour, prevents nausea and eructations, and aids its digestion.

"DANIEL HOOPER, M.D."

"Spring Grove, Upper Norwood, London, S.E.

"Dear Sir,—I have pleasure in testifying to the excellence of your Soluble Essence of Jamaica Ginger. You have fully overcome the difficulty usually experienced in preserving ginger in combination and in solution with iron tonic mixtures. EDWARD HAUGHTON, M.D."



THE COMPOUND ESSENCE
(GUARANTEED PURE AND FREE FROM CAPSICUM).

This Essence imparts with the GINGER a PECULIARLY FINE FRUITY FLAVOUR and AROMA.

TRADE PRICE, 5s. 6d. per lb.; 12 lbs. and upwards, 5s.

THE COMPOUND FORTIFIED ESSENCE
Specially adapted for the Manufacture of the FINEST
GINGER ALE.

This Essence imparts the fullest amount of PUNGENCY with the FINE GINGER AROMA and FRUITY FLAVOURS of the LAST-MENTIONED ESSENCE.

TRADE PRICE, 5s. 6d. per lb.; 12 lbs. and upwards, 5s.

HAY'S GINGER ALE ESSENCE
HIGHLY CONCENTRATED.

This Essence is a complete Bouquet of the finest Ginger, Lemon, and other flavours, in a highly concentrated state.

TRADE PRICE, 9s. per lb.; 12 lbs. and upwards, 8s. 6d.

GINGER ALE EXTRACT
Supplies Pungency, Aroma, Colouring and Flavouring.

Price 4s. 6d. per lb.; 12 lbs. and upwards, 4s.

PREPARED BY
W. HAY, MANUFACTURING CHEMIST,
4 REGENT'S TERRACE, HULL.

AGENTS,
Messrs. HEARON, SQUIRE & FRANCIS
5 COLEMAN STREET, LONDON, E.C

GOUGH'S GOOD TEMPLAR SPARKLING CHAMPAGNE.

18s. per Dozen Bottles;
22s. per Two Dozen Half Bottles.

Duty paid in London, or f.o.b. Export Ship there.

I have appointed CHARLES KINLOCH & CO., Backchurch Lane, London, E., SOLE AGENTS for England, Germany, France, Italy, Russia, the English Colonies, and America, for the Sale of my Wine.

JULES DELARUE,
Mareuil-sur-Ay, France.

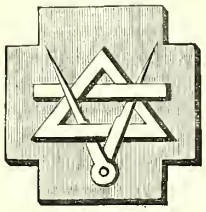
ALL ORDERS MUST BE SENT DIRECT TO MY AGENTS.

C. KINLOCH & CO.'S WHOLESALE LIST OF WINES AND SPIRITS ON APPLICATION.

"VICTORIA" OFNER MINERAL BITTER-WATER.

THE BEST NATURAL APERIENT.

TRADE MARK.



As a safe, ordinary, and gentle aperient,
In inflammation and congestion,
In rheumatic and gouty disorders,
Against undue tendency to fat,
Against hæmorrhoids,
In bilious attacks and disorders of the liver,
During pregnancy and in many female diseases,
For habitual constipation,
In Organic Diseases resulting from fatty degeneration,
To remove the consequences resulting from excess in diet, &c.

The Proprietors of this Natural Spring of Laxative Water are desirous of bringing the leading features before the Medical Profession. The advantages specially claimed are, that it contains a larger amount of valuable active aperient solids than any other bitter water previously in vogue with the public, or prescribed by the faculty, and notwithstanding its rapid action as an aperient, it produces no uneasiness in its effects. It will be seen from the analytical data (below) of eminent Professional Chemists of England and the Continent, that this water contains nearly double the amount of Magnesia found in any other Bitter Water, hence it is entitled to be distinguished as a "SPECIFIC MAGNESIUM BITTER WATER."

	Analysis of Prof. H. E. ROSCOE, F.R.S., Owens College, Manchester.	Special Analysis of Prof. M. BALLO, Chemist of the City of Budapest.	Analysis of Dr. G. L. ULEX, Official Chemist of the City of Hamburg.
MAGNESIUM SULPHATE ..	32·8107	32·3800	33·60
SODIUM SULPHATE	17·1693	20·9540	19·55
POTASSIUM SULPHATE ..	0·4407	0·3105	1·28
CALCIUM SULPHATE	2·3304	1·6020	1·33
SODIUM CHLORIDE	1·7708	2·2431	2·28
SODIUM CARBONATE	1·1884	0·4980	2·10
ALUMINA	0·0108	0·0229	0·3
SILICA	0·0587	0·0444	0·6
PHOSPHORIC ACID	Trace	Trace	Trace
SUMMARY OF TOTAL SOLUBLE CONSTITUENTS	55·1798	58 0549	60·23
Do. Do. FOUND DIRECTLY	55·7250	58·156	
SPECIFIC GRAVITY AT 17°C. ..	1·0534 AT 17°R.	1·05362 AT 14°R.	1·055

Soluble Constituents and Sulphate of Magnesia in "Victoria Bitter Water," as compared with other Mineral Waters.

	Soluble Constituents.	Sulphate of Magnesia.
VICTORIA Bitter Water	**55·77**	**32·87**
Rákóczy	53·53	23·06
Franz Josef	52·29	24·78
Hunyady László	51·07	24·20
Hunyady János	41·73	18·44
Königsbitterquelle ..	37·55	16·63
Elisabeth	26·29	8·04
Püllnaer Bitterwasser	32·72	12·12
Friedrichshaller	25·29	5·15
Saidschützer	23·21	10·96

Retail Prices:—Litres, 1/6 per bottle; Half-Litres, 1/- per bottle.

Cases are free and contain either 25 Litre Bottles or 50 Half-litre Bottles. May be obtained of any Chemist or Patent Medicine Vendor in the United Kingdom.

THE "VICTORIA" NATURAL BITTERWASSER OF BUDAPEST, HUNGARY.

Wholesale Depot for England and Colonies:—92 & 93 Great Russell Street (corner of Charlotte Street), London, W.C.

W. J. BUSH & CO.,

Distillers and Importers of

Essential Oils & Fruit Essences,

SPECIALITIES FOR AERATED WATER AND CORDIAL MANUFACTURERS,

ESSENCE LEMON,

EXTRA SUPER QUALITY,

The only pure Essence imported, made at our Works at Sicily.

ESSENCE GINGER ALE,

For Winter Drinks.

TONIC ESSENCE,

FOR BITTER WATER.

Soluble Essence Lemon.

SOLUBLE ESSENCE GINGER.

SOLUBLE ESSENCE OF PEPPERMINT.

BEWARE OF SPURIOUS IMITATIONS.

W. J. B. & Co. caution the Trade against the so-called Soluble Essences now so frequently offered for sale, which are nothing more than mere Tinctures; and although offered at lower prices, cost 5 or 6 times as much in use, whilst imparting a strong medicated flavour. W. J. B. & Co. further beg to inform their friends that Aerated Drinks as Pale Ale, Horehound Beer, &c.—made from their Soluble Essences are exempt from Excise regulations.

NONE OTHERS ARE GENUINE.

CAUTION.

W. J. BUSH & CO. regret having to caution the trade against spurious imitations of this article, most of which being incredible trash.

GUM EXTRACT

(French Cream),

PROTECTED BY ROYAL LETTERS PATENT,

For producing a Permanent Head of Creamy Richness on Ginger Beer, Ginger Ale, Lemonade, and other Aërated Beverages; also on Beers, Ciders, Wines, &c.

2s. 6d. per lb.

TO MAKERS AND VENDORS OF EFFERVESCING DRINKS, AND TO THE PUBLIC GENERALLY.

IN the High Court of Justice—Chancery Division—on Thursday, June 10, 1880, before Vice-Chancellor Sir C. Hall, an application was made in the action of Bush *v.* Young to commit the defendant to prison for disobeying an injunction whereby he had been restrained from selling, imparting, or publishing a recipe, which is an infringement of a certain patent known as "Gum Extract," the property of the plaintiff, which is used in the mineral water trade for giving a creamy head or foam to ginger beer and other beverages; the defendant having published and sold a recipe for the preparation of the same compound under the name of "Compound Fluid of Saphacanium," to be used for the same purpose. The defendant resisted on the ground that the bark used by him was not the same as that used by the plaintiff, being known as "Panama Bark."

The plaintiff, however, proved that this was in fact the same, and the Court granted the injunction. The defendant also threatened to publish the recipe unless it were bought up by the plaintiff.

His lordship made an order that in default of defendant paying the costs, he should stand committed to prison.

All persons infringing the above patent will be proceeded against, and those who give information of such infringement will be liberally rewarded.

W. J. BUSH & CO.,

20-23 Artillery Lane, Bishopsgate, London, E.

HAY'S GINGER CHAMPAGNE.

A DELICIOUS NON-INTOXICATING AND INVIGORATING **TONIC BEVERAGE.**



PRICE, IN HALF-PINT CHAMPAGNE BOTTLES, **5s. 6d.** PER DOZEN.

This **SPARKLING, EXHILARATING,** and **REFRESHING DRINK,** while being far more agreeable in bouquet and flavour than the **FINEST CHAMPAGNE WINE,** is, at the same time, unlike it, **FREE** from **ALCOHOL.**

It is strongly recommended both for Juveniles as well as for Adults, as the most wholesome stimulating beverage that has hitherto been introduced, and should be in every household during all seasons of the year.

"One of the most delicate and wholesome drinks in the market. The creaminess, colour, and even the aroma of champagne are precisely imitated, and the after flavour of the Ginger Essence is peculiarly grateful."—*Medical Press.*

"Made by Mr. Hay, of Hull, with his well-known Soluble Essence of Jamaica Ginger, takes rank as a pure, wholesome, stimulating, and non alcoholic beverage.—*British Medical Journal.*

"So much does it please the palate that one feels inclined to open a second bottle after having drunk the first. This is a beverage which the practitioner can safely recommend."—*Medical Times and Gazette.*

'Mr. Hay, of Hull, deserves abundant success with his Ginger Champagne. It is an exhilarating, wholesome, and very agreeable beverage."—*The Chemist and Druggist.*

"Creamy, sparkling, and pleasantly aromatic; is in our opinion the best thing of its kind yet introduced."—*Eastern Morning News.*

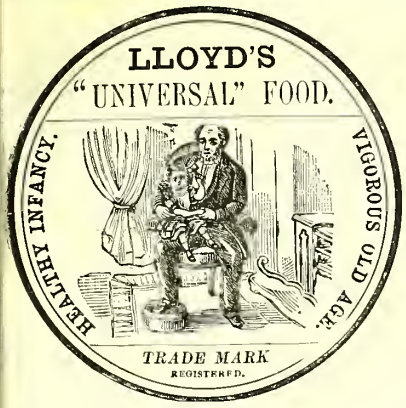
SOLE MANUFACTURER—

W. HAY, Chemist, &c.,

4 Regent's Terrace, HULL.

WHOLESALE AGENTS—MESSRS. INGRAM & ROYLE,

119 QUEEN VICTORIA STREET, LONDON, E.C.



LLOYD'S "UNIVERSAL" FOOD

(Patent Cooked Malted Farinaceous),

THE NEW FOOD

FOR INFANTS, CHILDREN, AND ADULTS, BOTH IN HEALTH AND SICKNESS:

REQUIRES NEITHER BOILING NOR STRAINING.

From the *British Medical Journal*, June 25, 1881:—"This Food has, we find on trial, many recommendations: it is easily digested, and requires no cooking, needing only to be mixed with boiling water or milk. It is highly nutritious, very palatable, and has the merit of being cheap. It makes an excellent supper-dish, and a delicate custard with fruit. It has more nutrition than rice, sago, or tapioca, and makes excellent pudding. As an article of ordinary diet, it is applicable for general use as well as for the special use of invalids and children, for whom it may be made to replace, and often very advantageously, bread and milk and various forms of porridge. It is not artificially sweetened, and is a very excellent food, skilfully devised and well prepared."

This Food consists of the most nutritious and finest-selected cereal grains and pulse, combined with the active constituents of pure fresh malt meal, in such proportions as to render the mixture as nearly as possible chemically identical with the constituents of the human body itself. It is therefore valuable for everyday use, both in health and sickness, and for every condition of life; alike suited to the youngest child, the most robust adult, and the weakest invalid. Being **thoroughly cooked**, it is quickly and easily made; and being palatable, it is attractive, instead of, as so many foods are, repulsive. It is invaluable in all cases of weak digestion, confirmed indigestion, and constipation.

EXCELLENT for Breakfast.
UNSURPASSED for Supper.
DELICIOUS as Baked Pudding.

NOURISHING as Custard, with Stewed Fruit of all kinds.
INFANTS thrive Splendidly on it.

CHILDREN grow Strong on it.
ADULTS keep Well on it.
INVALIDS recover on it.

Analytical Report by Professor ATTFIELD, F.R.S., &c., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, Dec. 16th, 1880.

"I have made a chemical analysis and microscopical examination of LLOYD'S 'UNIVERSAL' FOOD, a well-mixed and prepared meal. I find it to be a *true food*, rich in all the elements necessary to the formation of flesh, fat, bone, and muscle, and therefore greatly superior to mere starchy 'foods.' Its elements are in a proper form, in a perfectly cooked form, and in natural proportions. The phosphates present equal fully two per cent. of bone phosphate. The nitrogenous or flesh-forming matter amounts to as much as fifteen per cent. (Signed) JOHN ATTFIELD."

In Tins, at 1s., 2s, 5s., and 10s. each, less usual trade discount, of the Manufacturers,

J. & C. LLOYD & CO., Verulam Street, Gray's Inn Road, LONDON, E.C.

Product of a special refining process.

It is Chocolate devoided of its over-richness and substantiality.

Sugarless, and, when made, of the consistence of Coffee.

An afternoon Chocolate.

In packets, 6d. and 1s., and tins, 9d., 1s. 4d., 2s. 8d., 5s., or 7s. 6d. labelled.

JAMES EPPS & CO.,

Homœopathic Chemists,

LONDON.

EPPS'S CHOCOLATE ESSENCE.

GIBSON'S

DELECTABLE JUJUBES, VOICE JUJUBES, AND GLYCERINE PASTILLES,

Put up in 4-lb. Decorated Tins with Glass Lids, *TINS FREE*, are now being inquired for by buyers from all parts of the world. They are not surpassed in quality by any maker, and give entire satisfaction.

MEDICATED and HIGH-CLASS LOZENGES, of every kind.
Sent out in 2-lb. or 4lb. Bottles, Bottles Free; or in Tins, from 10 lb. upwards.

LIME JUICE TABLETS, THIRST QUENCHERS.

ACID DROPS, AND BEST QUALITY BOILED SUGARS OF EVERY KIND.

GIBSON'S ORIGINAL CHLORODYNE LOZENGES.

PENNY SUGAR WORM CAKES, suitable for either *children* or *adults*. Have an immense sale, keep in any climate, and please everybody. Manufactured by

ROBERT GIBSON, Carlton Works, Hulme, Manchester, and 1 Australian Avenue, London.

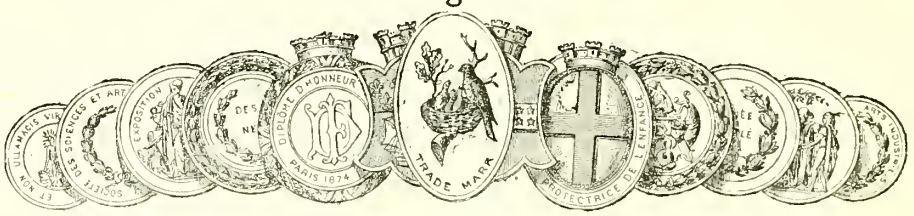
Price Lists sent on application. Our Goods can be bought through any Wholesale or Export House in London.

NESTLE'S MILK FOOD

AND

CONDENSED SWISS MILK.

These incomparable products of world-wide celebrity have obtained the following Prizes:



Also the Gold Medal at Paris Exhibition, 1878; Silver Medal, Sydney, 1879; "First Order of Merit," Melbourne, 1881.

OBTAINS A PRIZE WHEREVER EXHIBITED.

Foreign and Colonial Importers should obtain their supplies through any Wholesale Firm in Great Britain, or Shipping Agent, thus ensuring fresh stock and lowest prices.

PRINCIPAL DEPOT:—9 SNOW HILL, LONDON.

NOTE THE PRICE

LIEBIG'S EXTRACT OF MEAT.

Prepared according to Baron Liebig's own Instructions.

7 lb. Tins	49/- each.	½ lb. Jars	45/- per doz.	2 oz. Jars	12/4 per doz.
1 lb. Jar	87/- per doz.	4 oz. do.	23/3 do.	1 oz. do.	6/9 do.

Flavoured Extract of Meat, 6*d.* per lb. less. Solid Essence of Meat, 1 lb. Jars, 4*s.*; ½ lb. Jars, 4*s.* 3*d.*; ¼ lb. Jars, 4*s.* 6*d.* per lb.

6 lb. weight Carriage Paid. Packages Free. Orders of 50 lbs. 7½ per cent. off.

Also Beef, in 2 lb. tins, at 10/- per doz. Corned Beef, in 2 lb. tins, at 10/6 per doz. Mutton, in 2 lb. tins, at 13/- per doz.

THE AUSTRALIAN (RAMORNIE) MEAT CO., 52 & 53 CRUTCHED FRIARS, LONDON.

NOTE THE PRICE

THE "UNIVERSAL" KNEADING AND MIXING MACHINE.

P. PFLEIDERER'S PATENTS.

Write for New Lists. Great Improvements. Perfection achieved.

PAUL PFLEIDERER, 37 Farringdon Street, LONDON, E.C.

PATENTEE AND MANUFACTURER.

THE PURE FOOD COMPANY'S

Preparations and Manufactures of various Articles of Food of Daily Consumption,

Including especially those required by INVALIDS.

CONCENTRATED BEEF-TEA, &c.
EXTRACT OF COFFEE, &c.



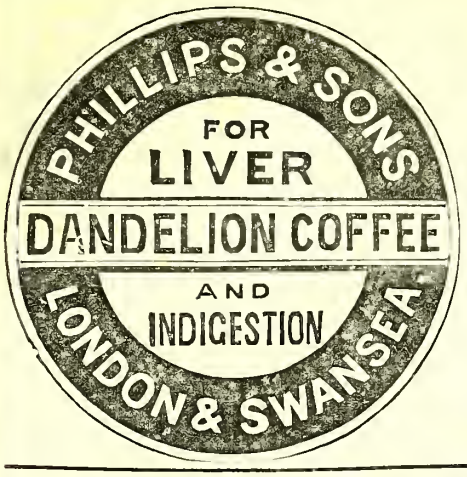
TRADE MARK.

MILK FOODS, &c., FOR INFANTS, CHILDREN, AND INVALIDS.

ALL BEING GUARANTEED OF ABSOLUTE PURITY AND OF THE FINEST QUALITY.

For Price List and further particulars, apply to

THE PURE FOOD COMPANY, 4 PRINCES STREET, RED LION SQUARE, LONDON.



ESTABLISHED 1760.

Contains three times the strength of ordinary Breakfast Beverages.

ONCE TRIED ALWAYS USED.

The valuable properties of the Dandelion Root, recognised by eminent Physicians for many centuries, has now become an article of daily use.

Sold by all Chemists throughout the Kingdom in Tins at 1s. 6d., 1s., 9d., and 6d.—*Price Lists on application to the Manufacturers,*

PHILLIPS & SON,

CASTLE SQUARE, SWANSEA,

AND ARTHUR STREET WEST, LONDON BRIDGE,

OR OF

JAS. WOOLLEY, SON & CO., Manchester. | EVANS, SONS & CO., Liverpool, &c.
W. MATHER, Export Agent, London. | MAW, SON & THOMPSON, Aldersgate Street, London.
CLARKE & McMULLAN, Belfast. | BURGOYNE, BURBIDGES & CYRIAX, 16 Coleman Street
GOODALL, BACKHOUSE & CO., Leeds. | BARCLAY & SONS, Farringdon Street.
McMAISTER & HODGSON, Dublin.

COLONIAL AGENTS.—Melbourne, Adelaide, and Sydney—P. FALK & CO. New Zealand, Nelson, Canterbury, Auckland—A. SCLANDERS & CO.; E. & A. ISAACS. Adelaide—F. H. FAULDING & CO. Cape, Algoa Bay, East London—L. DREYFUS.

SPECIAL TERMS TO MERCHANTS AND SHIPPERS.

Gold Medal, Paris, 1878. First Degree of Merit and Medals, Sydney, 1880, Melbourne, 1881.

FRY'S COCOA EXTRACT

Is guaranteed to be perfectly pure Cocoa only, the superfluous oil extracted.

"If properly prepared, there is no nicer or more wholesome preparation of Cocoa"—DR. HASSALL.
"Strictly pure, and well manufactured in every way."—W. W. STODDART, F.I.C, F.C.S., *City Analyst.*

Try also FRY'S CARACAS COCOA.—"A delicious preparation."

J. S. FRY & SONS, BRISTOL AND LONDON.

SPECIAL NOTICE & CAUTION.

BRAND & CO.

The Original Manufacturers of Essence of Beef (green label under wrapper), and other Specialities for Invalids, have

NOT REMOVED

From their SOLE ADDRESS, No. 11 LITTLE STANHOPE STREET, MAYFAIR, W, and caution the trade to

BEWARE of IMITATIONS.



MUSTARD.

FINCH, RICKMAN & CO.'S

Genuine Qualities

Are made from the finest mustard seeds only. Their compounds, as manufactured for upwards of a century, are guaranteed free from all ingredients imparting spurious heat, and are therefore equally suitable for both table and medical purposes.

6 BROKEN WHARF, UPPER THAMES STREET, LONDON.

CHEMISTS' TEA AGENCY.

WALKER & DALRYMPLE'S Broken-Leaf Tea

1s. 8d. per lb.

A money-saving tea. Absolutely pure. The small leaf from some of the finest Indian and China Teas. Produces a tea in the cup stronger, richer, and cheaper than most whole-leaf teas. Agents appointed, where unrepresented, throughout the United Kingdom.

WALKER & DALRYMPLE'S Intermediate Tea,

2s. per lb.

BEST at the PRICE EVER SOLD. Great strength, and a most useful tea where there is a large consumption. Recommended to all who wish to save in their tea. Agents appointed, where unrepresented, throughout the United Kingdom.

WALKER & DALRYMPLE'S TEAS.

Agents appointed, where unrepresented, throughout the United Kingdom. Prospectus and samples free on application.

Warehouses—154 and 155 Whitechapel Road, London.

P.O.O. payable at Head Office. Bankers—The National Provincial Bank England.

NOVELTY.

SILICATED CARBON POCKET FILTER,

IN GERMAN SILVER, NICKEL-PLATED.

Retailed at FIVE SHILLINGS each.

Designed by
MAJOR FRASER,
of the
ROYAL ENGINEERS,
especially
for Officers' Kits.
Weighs only 8 ounces.



(REGISTERED.)
No. 20 H.

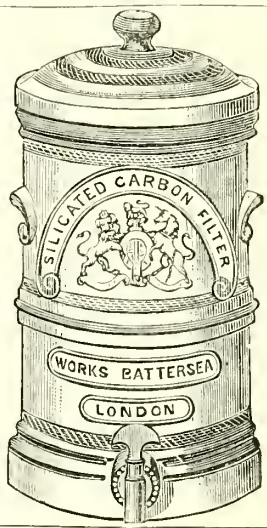
It has been approved
by the
Authorities at the
Horse Guards, and has
been largely
used in the Afghan and
Zulu Expeditions.

Sample sent free by Post on receipt of FOUR SHILLINGS.

DOMESTIC FILTER, NO. 27.

Made in cream-coloured Stoneware, fitted with the Silicated Carbon Media, complete with Cover and Silver-plated Tap.

All sizes of this pattern can now be had with Ice Compartment, which renders this Filter the most perfect of Refrigerators.



PRICES.

			With Ice Compartment.
No. O, capacity	½ gallon	10*s.* 6d.	
No. A, „	1 „	14*s.* 6*d.* ...	17*s.* 6*d.*
No. B, „	2 „	21*s.* 0*d.* ...	25*s.* 0*d*
No. C, „	4 „	32*s.* 0*d.* ...	36*s.* 0*d.*
No. D, „	6 „	42*s.* 0*d.* ...	48*s.* 0*d*
No. E, „	8 „	52*s.* 0*d.* ...	60*s.* 0*d.*
No. F, „	12 „	70*s.* 0*d.* ...	80*s.* 0*d.*

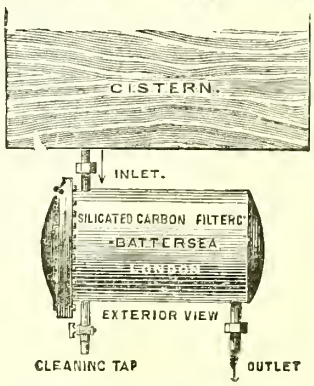
MAIN SUPPLY FILTER, NO. 40.

SPECIALLY ADAPTED FOR
Mansions, Schools, Hospitals, Public Institutions, Breweries, Distilleries, Soda Water Manufactories, Dye Works,
And all other Establishments where large quantities of

PURE WATER

Are required.

The ordinary Sizes kept in Stock are as follows :—
A, ½-inch or ¾-inch pipe .. .. .. £6 6*s.*
B 1-inch pipe .. .. £9 9*s.*
C, 1¼-inch, 1½-inch pipe .. .. .. £15 15*s.*
D, 2-inch pipe .. .. £26 5*s.*



This Filter is extremely simple in construction, and can be either connected with a Cistern or attached to the Main Service Pipe. It requires no attention beyond an occasional opening of the Cleansing Tap, and will deliver a supply of purified water at a rate of 50 to 1,000 gallons per hour, according to size.

Special Contracts entered into for Large Works, Institutions, &c., &c.,

FOR PURIFYING THE WHOLE OF THE WATER SUPPLY OF A BUILDING BEFORE USE.

Ensuring Rapid and Perfect Filtration, at either High or Low Pressure.

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

SILICATED CARBON FILTERS.

SYPHON FILTERS FOR TRAVELLERS.

By means of these Filters pure and perfectly wholesome water may be drunk from any pond or stream by simply immersing the Filter therein and drawing the water through the tube by suction.



No. 20.

Each of these portable Filters may be used as a Syphon by placing it in a vessel of water, then drawing the water by the mouth, and allowing the flexible tube to hang over the side below the Filter. When once set in operation their action is continuous.

They are readily cleaned from sedimentary matter by merely blowing through the tube, and brushing the surface of the filtering medium.

	s.	d.
A.—Pocket Filter, 2½ inches diameter, in porcelain, with glass mouthpiece, in decorated metal box	2	6
B.—Ditto, 3½ inches diameter, in best stoneware	5	0
Ditto, „ „ with silver-p'ated tap	7	0
C.—Emigrant's, 5 inches diameter, with silver-plated tap	12	0
*G.—Pocket Filter, for carrying over shoulder, as supplied to the Forces in Abyssinia and in Zululand, and to the Ashantee Expedition .. ..

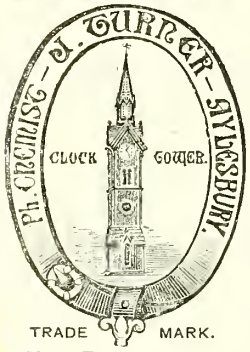
KORFF'S PURE CHOCOLATE POWDER.

33/ per Dozen Pound Tins.
17/ „ „ Half-Pound Tins.
9/ „ „ Quarter-Pound Tins.

Of all the Wholesale Houses, and
E. A. PHILLIPS & CO., 23 GREAT ST. HELEN'S, LONDON, E.C.

TURNER'S TARAXACUM OR DANDELION COFFEE

IS THE BEST.



Is sold in 6*d*., 1*s*., and 2*s*. Tins only, and each Tin bears the Proprietor's "**Registered Trade Mark**" on the Wrapper, without which it is not genuine.



TURNER'S DANDELION COFFEE

Is recommended by the Faculty. *See Testimonial.*

TESTIMONIAL from C. SPENCER, Esq., M.R.C.S., WHITCHURCH.

"Dear Sir,—I have tried your Coffee, like it, and can speak very highly of it. "Yours truly,
"*Mr. J. Turner.*" "C. SPENCER."

This Preparation is well got up, gives a good profit, and will only be supplied to one Chemist in each Town.

TERMS ON APPLICATION TO THE PROPRIETOR.

Prepared and Sold by J. TURNER, Pharmaceutist, AYLESBURY.

NELSON'S PURE BEEF TEA

SOLD IN HALF-PINT PACKETS.

Samples and Prices on application to the Manufacturers,

GEORGE NELSON, DALE & Co.,

14, DOWGATE HILL, LONDON, E.C.

E. LAZENBY & SON (6 EDWARDS STREET, PORTMAN SQUARE.) Sole Proprietors of the Celebrated Receipts and Manufacturers of the Pickles, Sauces and Condiments so long and favourably distinguished by their name, beg to remind the public that their labels are affixed to the choicest description of goods only, that every article prepared by them is guaranteed as entirely unadulterated and may be obtained of Grocers, Italian Warehousemen and others.

HARVEY'S SAUCE.—CAUTION.—The admirers of this Celebrated Sauce are particularly requested to observe that each bottle bears the well-known label signed "ELIZABETH LAZENBY"; this label is protected by perpetual injunction in Chancery of the 9th July 1858 and without it none can be genuine.

18 TRINITY STREET, LONDON. S.E.

Elizabeth Lazenby

IMPORTANT TO CHEMISTS.

GREAT REDUCTION.

SEABURY & JOHNSON

HAVE CONCLUDED TO REDUCE THE PRICE OF

INDIA RUBBER POROUS STRENGTHENING PLASTERS

TO £1 10s. 0d.,

CAPSICUM POROUS PLASTERS

TO £2 0s. 0d.,

SUBJECT TO USUAL DISCOUNT.

Every Plaster warranted to give perfect satisfaction.

A NEW CATALOGUE of our SPECIALTIES will be issued early during the NEW YEAR, 1881, containing a complete assortment of our

INDIA RUBBER, POROUS, AND SPREAD PHARMACOPŒIA AND SURGICAL PLASTERS, AND ANTISEPTIC DRESSINGS.

When ready a Copy will be sent to every Chemist in the United Kingdom.

Very truly yours,

SEABURY & JOHNSON,

1 & 2 AUSTRALIAN AVENUE, LONDON, E.C.

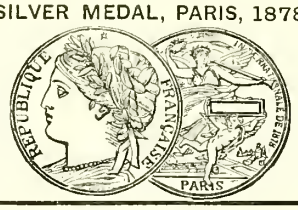
Silver Medal, Paris, 1878. **ALLEN & HANBURYS'** Highest Award. Philadelphia, 1876.

PURE COD LIVER OIL

N.B.—This Oil is made from fresh and selected livers at our own Factory at Longva, Norway. We can therefore guarantee its absolute purity, also that it will remain clear at a temperature of 32°.

In Half-gallon Winchesters and in Stone or Tin Bottles, 9s. per Gallon; 1 dozen Winchesters 3d. less; in 25-Gallon Tin-lined Casks, 8s. 3d. per Gallon.

SILVER MEDAL, PARIS, 1878.



REVISED PRICE LIST OF

JUJUBES

PREPARED BY

PATENT PROCESS.

A. & H. TRADE  MARK.

A.D. 1715.

		1 lb. size.	1/- size.	6d. size.
		Per doz.	Per doz.	Per doz.
ANISEED LIQUORICE	JUJUBES, 2/- PER LB., or in tin boxes.	30/-	8/-	4/-
BLACK CURRANT		"	"	"
DELECTABLE		"	"	"
EXTRACT OF MALT		"	"	"
GLYCERINE		"	"	"
LICHEN		"	"	"
LIQUORICE		"	"	"
MAGNUM BONUM		"	"	"
PECTORALE		"	"	"
PINE (Pâte de Jujube)		"	"	"
RASPBERRY		"	"	"
ROSE		"	"	"
TAMARIND		"	"	"
VIOLET		"	"	"
VOICE		"	"	"

		1 lb. size.	1/- size.	6d. size.
		Per doz.	Per doz.	Per doz.
PASTILLES, 2/2 PER LB., or in tin boxes.		32/-	8/6	4/4
		"	"	"
		"	"	"
		"	"	"
		"	"	"
		"	"	"
		"	"	"
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		"	"	"
		"	"	"
		"	"	"

All the above tins are neatly wrapped ready for sale. The One Pound Tins are returnable at 6/- per doz.

		1 lb. size.	1/- size.	6d. size.
GUIMAUVE, cut into Cubes	2/6 PER LB.	36/-	8/-	*not supplied*
GUIMAUVE PASTILLES				
GUIMAUVE SHEETS	2/- PER LB.			

GUIMAUVE PASTILLES (Crystallized).....2/6 per lb. } The two can be
" " (Rose).....2/6 per lb. } had mixed.
CRYSTALLIZED FRUIT PASTILLES .....2/- per lb. } Various assorted
CRYSTALLIZED VOICE JUJUBES .....2/- per lb. } or mixed.

PECTORAL FRUIT PASTILLES.

(Registered.)

A bronchial and pulmonic Jujube of delicious flavour.

Sold only in round boxes, to retail at 1/-, 1/9, and 3/- each; 9/-, 16/-, and 27/- per doz.

PAGE'S PATENT VAPORIZER AND CRESOLENE,

THE NEW SPECIFIC FOR WHOOPING COUGH,

Also useful in Asthma, Catarrh, Croup, Diphtheria, Hay Fever, &c., and for Disinfecting Purposes.

CRESOLENE is a definite product of Coal Tar, allied to, but distinct from, Carbolic Acid. It is stated to be far more destructive of fungoid and other very low forms of life than carbolic acid, and to be the most powerful antiseptic at present known. Be this, however, as it may, the important practical fact is that the inhalation of the vapour of Cresolene gives extraordinary relief in Whooping Cough, and commonly puts an end to the disorder in a few days. It has also proved valuable in Asthma and various other affections, and is a powerful and convenient disinfectant. The use of the Vaporizer and Cresolene is now very extensive in the United States. For further particulars and directions, and for important medical testimony as to the great value of this new remedy, see the handbills for distribution, which are supplied free on application.

VAPORIZER (either made to screw on to a gas burner or with a lamp for use with petroleum oil), including 2 oz. bottle of Cresolene, neatly packed in box, 6s. 6d. retail; 60/- per doz. CRESOLENE (without Vaporizer), 2 oz., 1/1; 4 oz., 2/6; 12/- and 23/- per doz.

N.B.—The Vaporizer is the best Apparatus for disseminating Perfumes, as a substitute for Spray Producers and Pastilles.

For Sale by all Druggists' Sundriesmen, and by the Sole Agents for Europe,

ALLEN & HANBURYS,

PLOUGH COURT, 37 LOMBARD STREET, LONDON, E.C.

General List of Drugs, Chemicals, &c., posted free on application.